Issue 117
PS
1962 Series
THE PREVENTIVE MAINTENANCE MONTHLY
WADDAYA MEAN WHERE'S MY LOG BOOK!!?
WILL EISNER

Warning: CAREFUL HANDLING

In the beginning it was a crude sort of thing.

Dirty. Unpredictable. Limited in its use.

But as time went by man strained his ingenuity and know-how and the thing gradually lost its crudeness.

It was refined and super-refined to fit whatever special needs came up.

It was not long before it became one of the most important things on the face of the earth.

No nation without it can be first-rate. It is the very life-blood of a modern army.

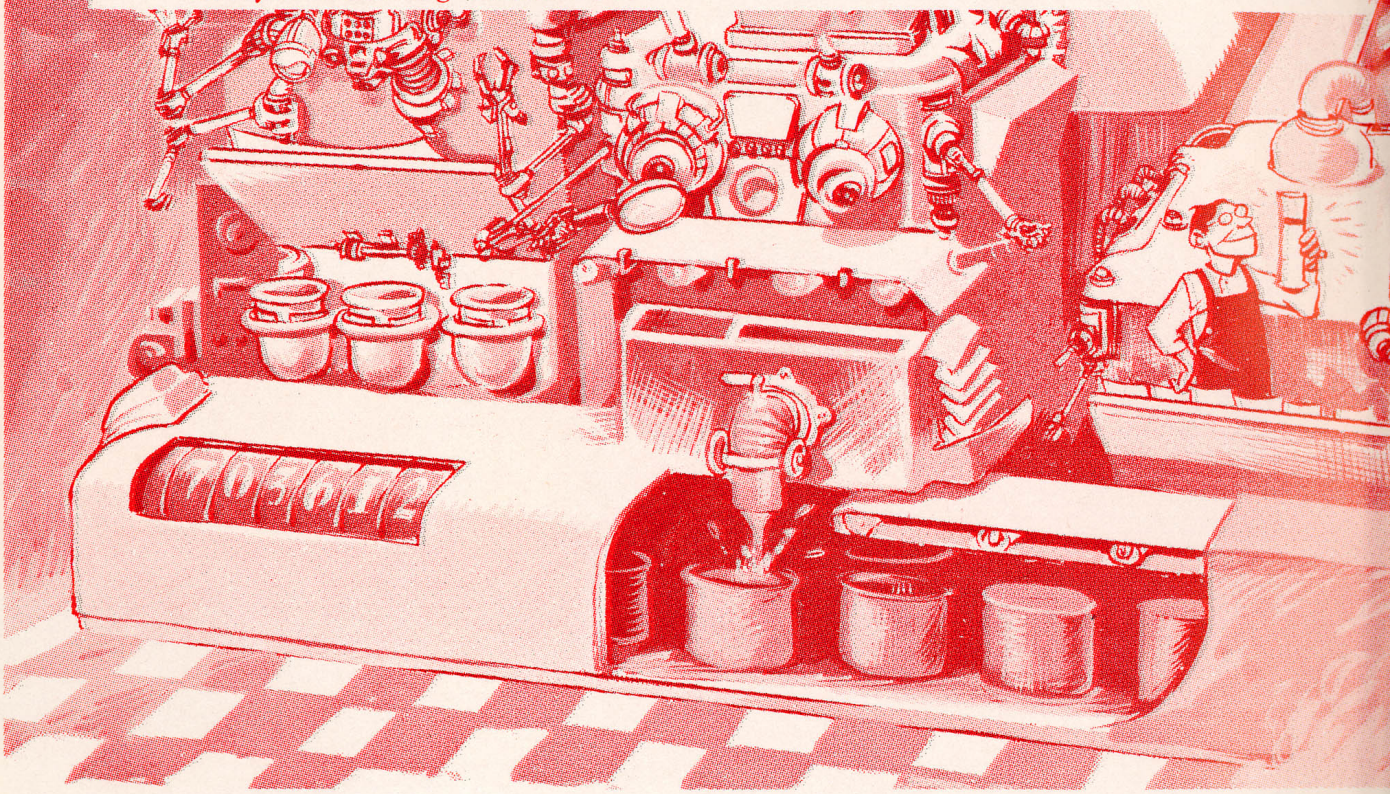
No effort or cost is spared in producing it. Fantastic precautions are taken to protect it . . . and to keep away all things that would contaminate it . . . and to make sure that it in turn will not contaminate.

But after all this caution, care and cost, what happens?

Some so-and-so fails to put the lid back on the oil can—or otherwise protect it. And this fabulous substance—that the wheels of fate and fortune turn on—becomes in a matter of minutes just as dirty, contaminated and unfit for use as it was when it settled in some dank corner a hundred million dollars ago.

Please.

Careful Handling Called For.



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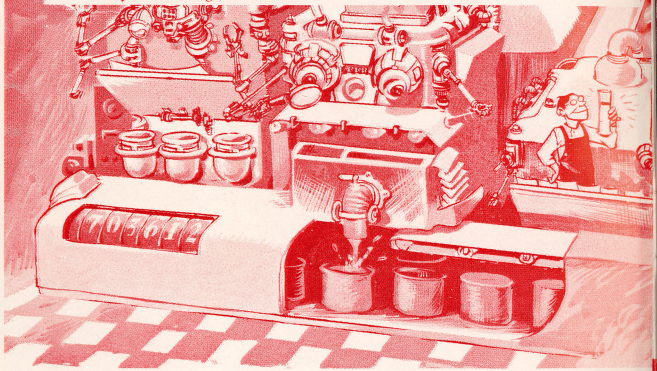

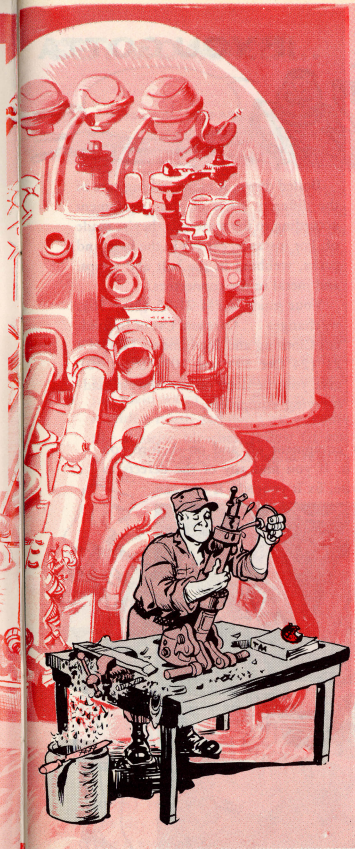

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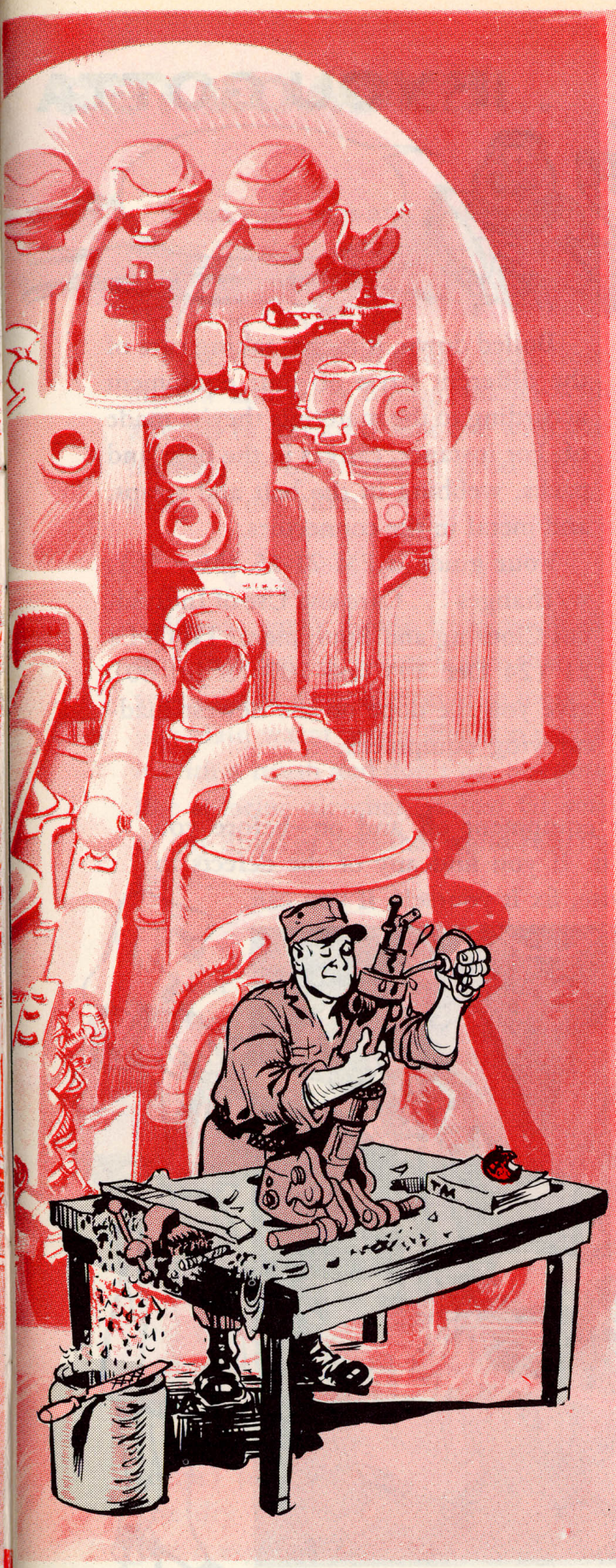

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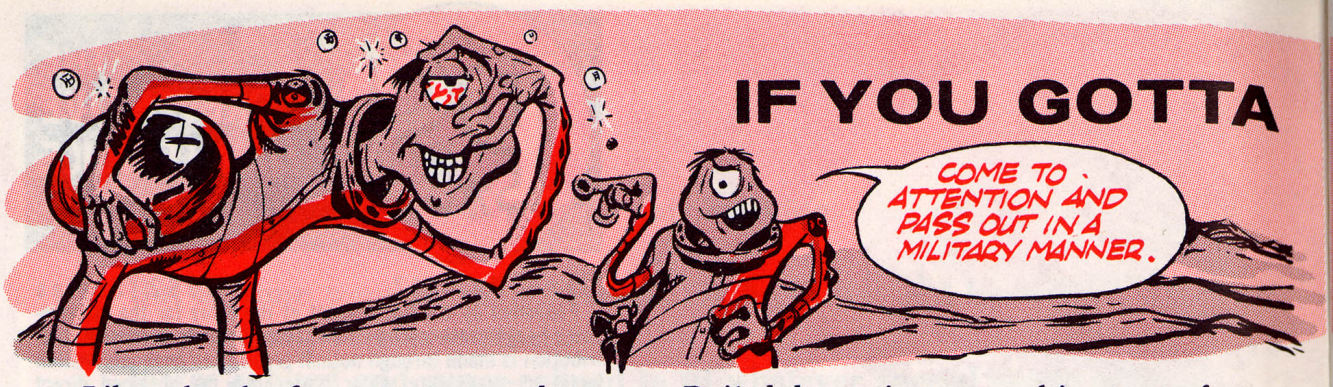


Like why the fireman wears red suspenders, that's why you wear load-carrying harness — to hold things together so's you can get a job done. Could be you'd be embarrassed to death if your "suspenders" fail.

But they won't fail if you keep 'em in shape. Which amounts simply to giving 'em good PM.

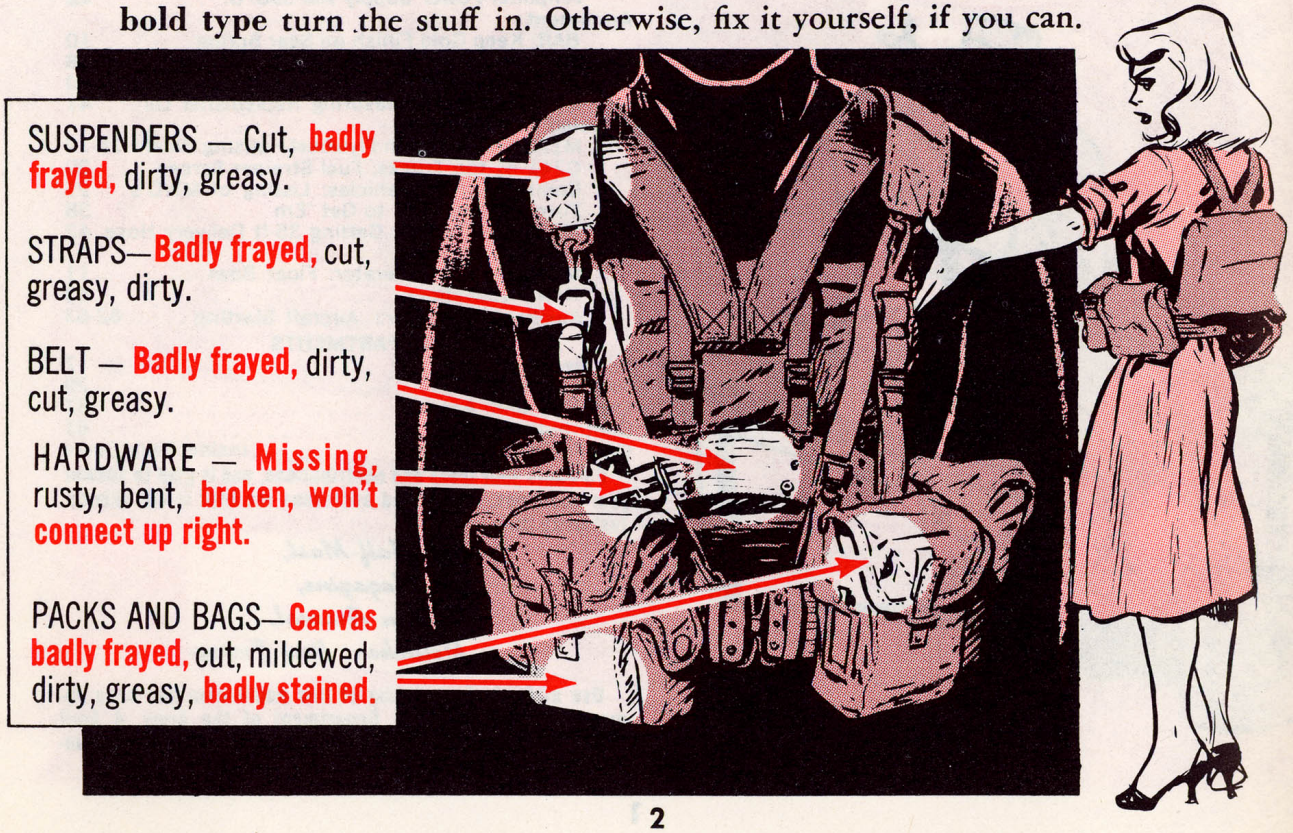
Mostly this means wearing 'em right, keeping 'em clean and fixing 'em pronto if anything goes wrong.

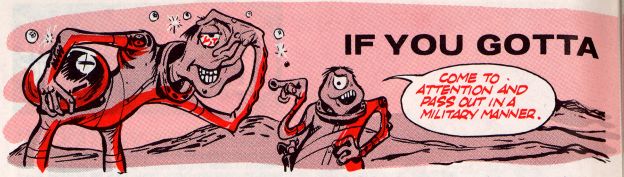
Boiled down, it means taking care of the different parts of your equipment according to the materials they're made of. For instance, canvas in the bags and packs, webbing in the belt and straps, and metal in the connectors.

Your guide is FM 21-15 (May 56), w/changes . . . Care and Use of Individual Clothing and Equipment. TB QM's 21 (24 Dec 59) and 107 (8 Jul 60) give you the dope on the newest load-carrying equipment.

INSPECT IT

Make the habit of checking your equipment off and on—before you hook it up and while you're using it. If you find any of the defects in **bold type** turn the stuff in. Otherwise, fix it yourself, if you can.





IF YOU GOTTA

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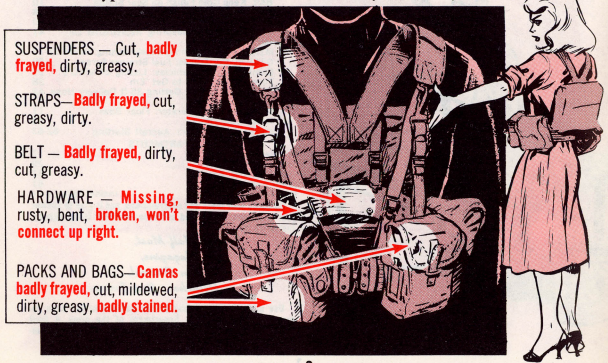


GET LOADED...

CLEAN IT

When your bags and packs get dirty, follow the dope on canvas care in Para 5 of FM 21-15 (Aug 61) and in Para 15a(1) in TB QM 107.

First, try to get rid of dirt, mud, dust, mildew and other foreign matter with a brush (a soft kind—not one with stiff bristles) or by wiping it good with a damp or dry cloth.

If that won't do the trick, wash the stuff in a pail of warm water that has very mild soap or detergent in it—or in just plain warm water. But don't scrub it with a brush and don't use anything like chlorine bleaches, yellow GI soap or any fluids or dyes that could ruin the fabric.

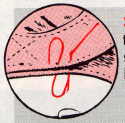
After it's washed good, rinse out all the soap and stretch the equipment to its original shape before drying. Dry it in the shade or indoors, but never in direct sunlight or near a hot stove or radiator as this will discolor it.

Wash the outsides of intrenching tool and canteen covers with warm water and mild soap. Then rinse and air-dry 'em.

You clean the web items (belts and straps) just like you clean canvas and you dry 'em the same way. However, like it says in Para 6 of FM 21-15, you never try to re-dye or repair any web stuff. That's a chore for your support people. If the belts and straps are too faded, turn 'em in.

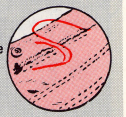
REPAIR IT

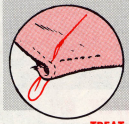
For repairing canvas items, follow the dope in Para 3d of FM 21-15 and Chapter 2 of TM 10-269.



Seams—Put two edges of the ripped seam together and sew, using small stitches in line with those already there.

Tears—Put the two edges together on the reverse side or on the inner side and sew 'em together.





Frayed Edges—Turn the frayed edge under and sew it up.

TREAT IT RIGHT

First and last, though, good PM means using but not abusing your equipment. Clean it when it gets dirty; dry it out when it gets wet. And whenever you can, try to protect it from both dirt and dampness. These lead to mildew, a disease that's fatal to all kinds of fabric.

Your load-carrying equipment is is your own personal supply line. In a showdown, it could be your life line. Keep it intact.

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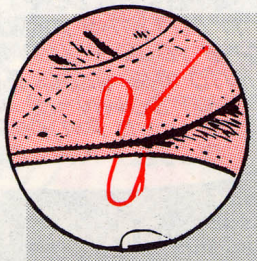

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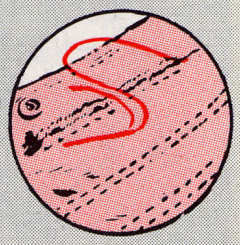

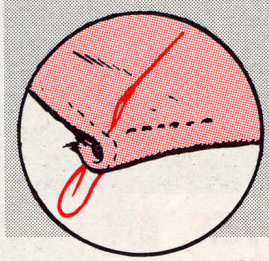

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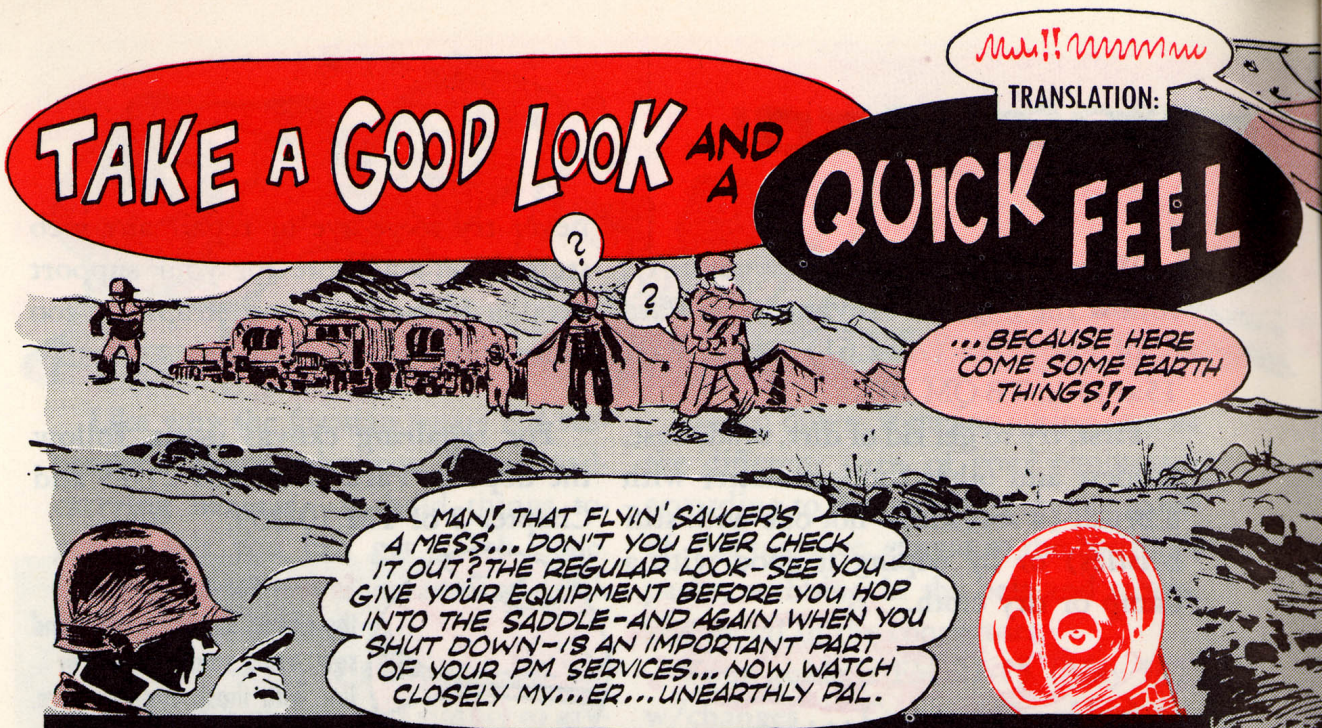


An honest-to-goodness inspection of your equipment can go a long way toward discovering minor troubles before they grow into major repair jobs.

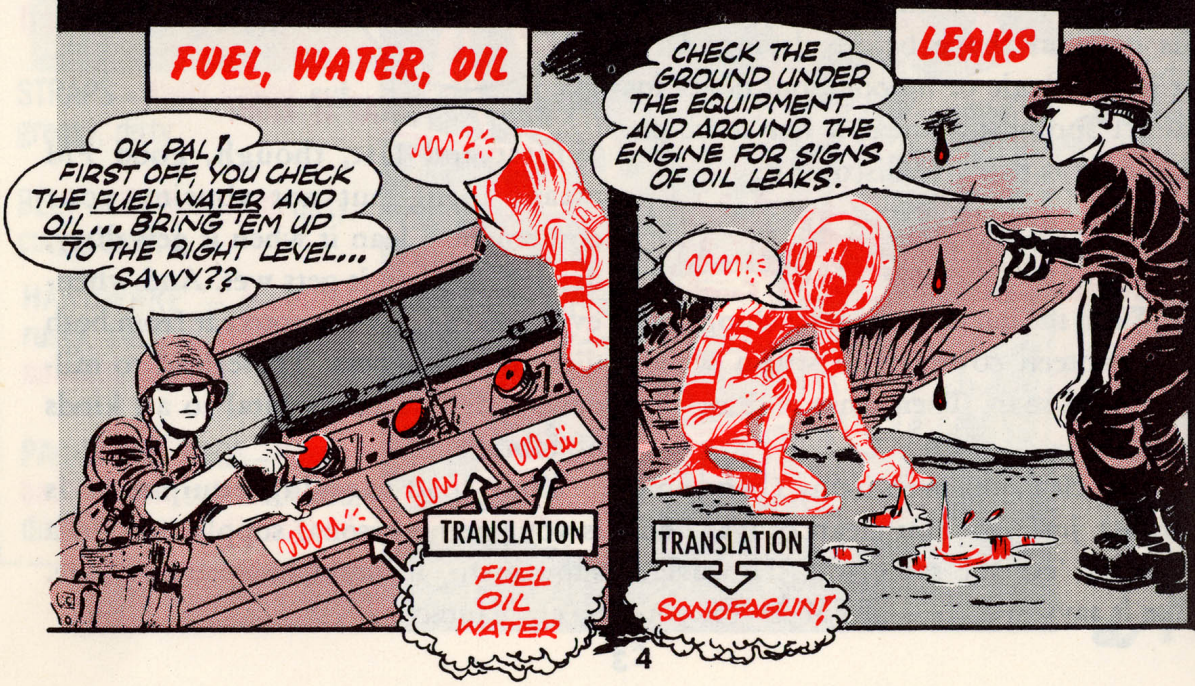
It'll also put you close to a gigproof rig.

These first echelon look-and-feel inspections—with special points to cover as outlined in the pubs for your equipment—can mean the difference between go and no-go.

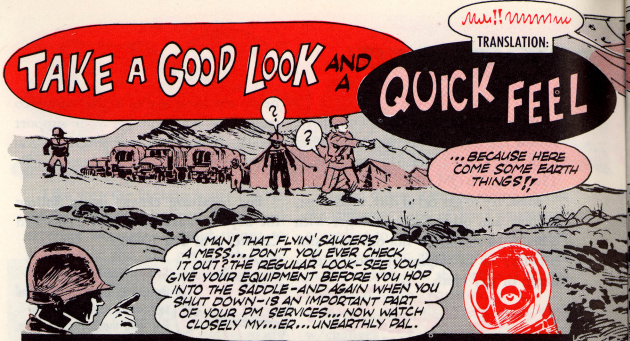
A leak, a loose nut or bolt, or a frayed V-belt overlooked during a "I-couldn't-care-less" inspection can bring you to a dead halt in the middle of no-where.

Here're some points an on-the-ball operator'll check out.

You can come up with other items to check by getting to know your equipment and the pubs that go with it.



TAKE A GOOD LOOK AND A QUICK FEEL



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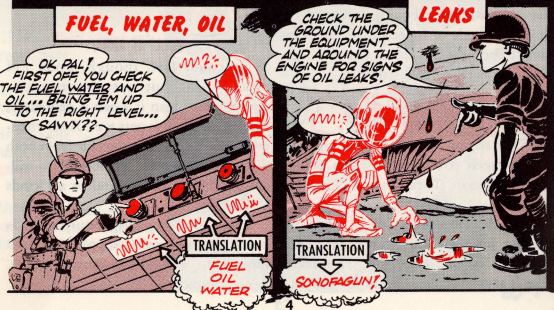
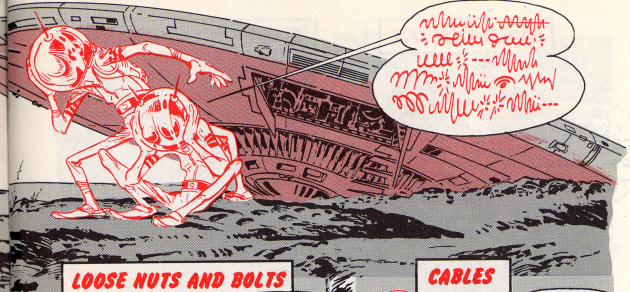
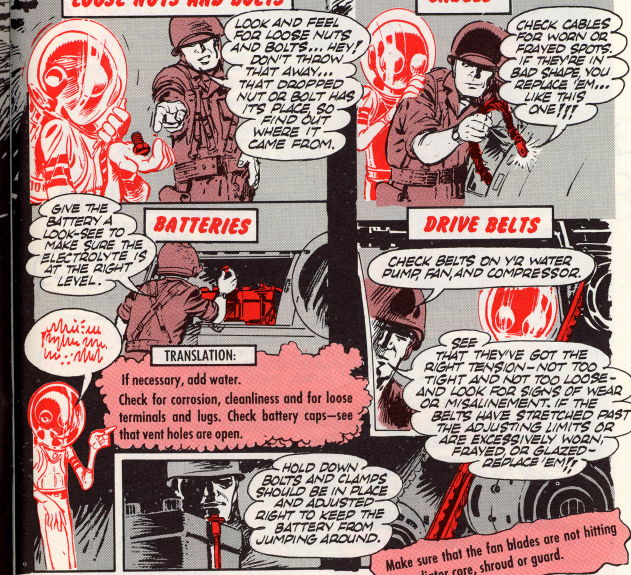


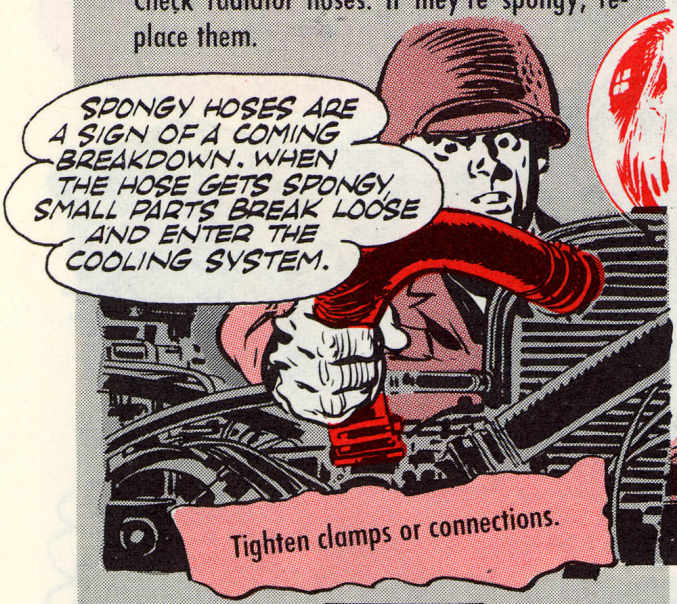




LOOSE NUTS AND BOLTS
LOOK AND FEEL FOR LOOSE NUTS AND BOLTS... HEY! DON'T THROW THAT AWAY... THAT DROPPED NUT OR BOLT HAS ITS PLACE, SO FIND OUT WHERE IT CAME FROM.
CABLES
CHECK CABLES FOR WORN OR FRAYED SPOTS. IF THEY'RE IN BAD SHAPE, YOU REPLACE 'EM... LIKE THIS ONE!!!
GIVE THE BATTERY A LOOK-SEE TO MAKE SURE THE ELECTROLYTE IS AT THE RIGHT LEVEL.
BATTERIES
DRIVE BELTS
CHECK BELTS ON Y'R WATER PUMP, FAN, AND COMPRESSOR.
SEE THAT THEY'VE GOT THE RIGHT TENSION - NOT TOO TIGHT AND NOT TOO LOOSE - AND LOOK FOR SIGNS OF WEAR OR MISALINEMENT. IF THE BELTS HAVE STRETCHED PAST THE ADJUSTING LIMITS OR ARE EXCESSIVELY WORN, FRAYED OR GLAZED - REPLACE 'EM!!
TRANSLATION:
If necessary, add water.
Check for corrosion, cleanliness and for loose terminals and lugs. Check battery caps—see that vent holes are open.
HOLD DOWN BOLTS AND CLAMPS SHOULD BE IN PLACE AND ADJUSTED RIGHT TO KEEP THE BATTERY FROM JUMPING AROUND.
Make sure that the fan blades are not hitting the radiator core, shroud or guard.

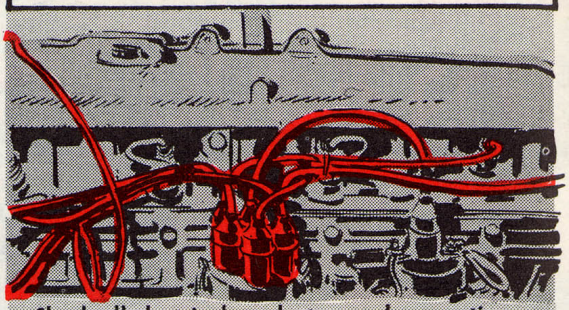
COOLING SYSTEM

Check radiator hoses. If they're spongy, replace them.



Tighten clamps or connections.

ELECTRICAL CONNECTIONS

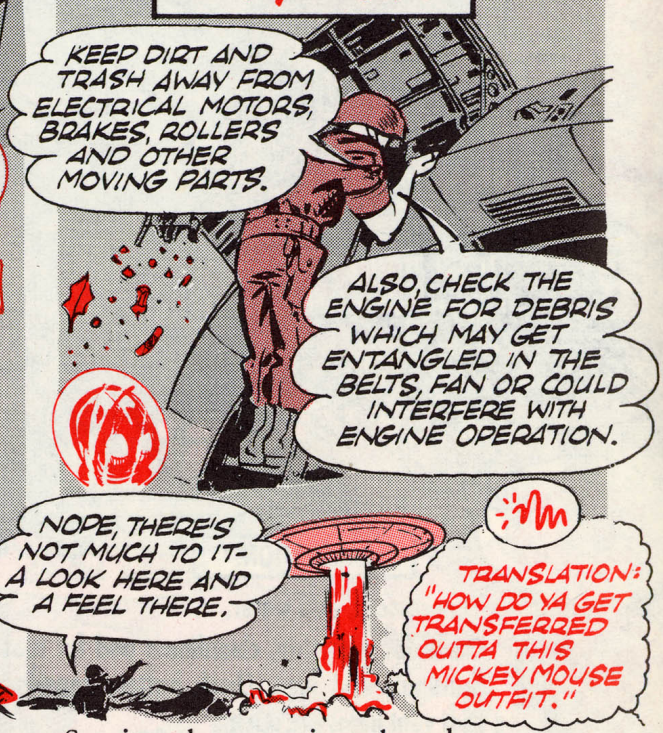


Check all electrical conductors and connections.

Check the insulation where cables rub against the machine or where they get repeated flexing. Wrap with tape where necessary.

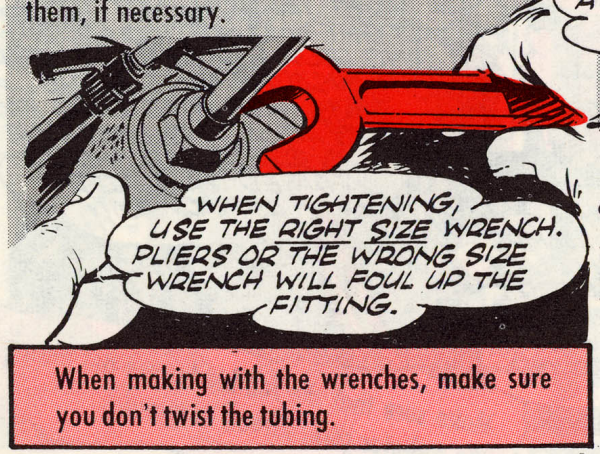
TIRES

DIRT, DEBRIS



FITTINGS

Check for loose fittings, tubes, hoses. Tighten them, if necessary.



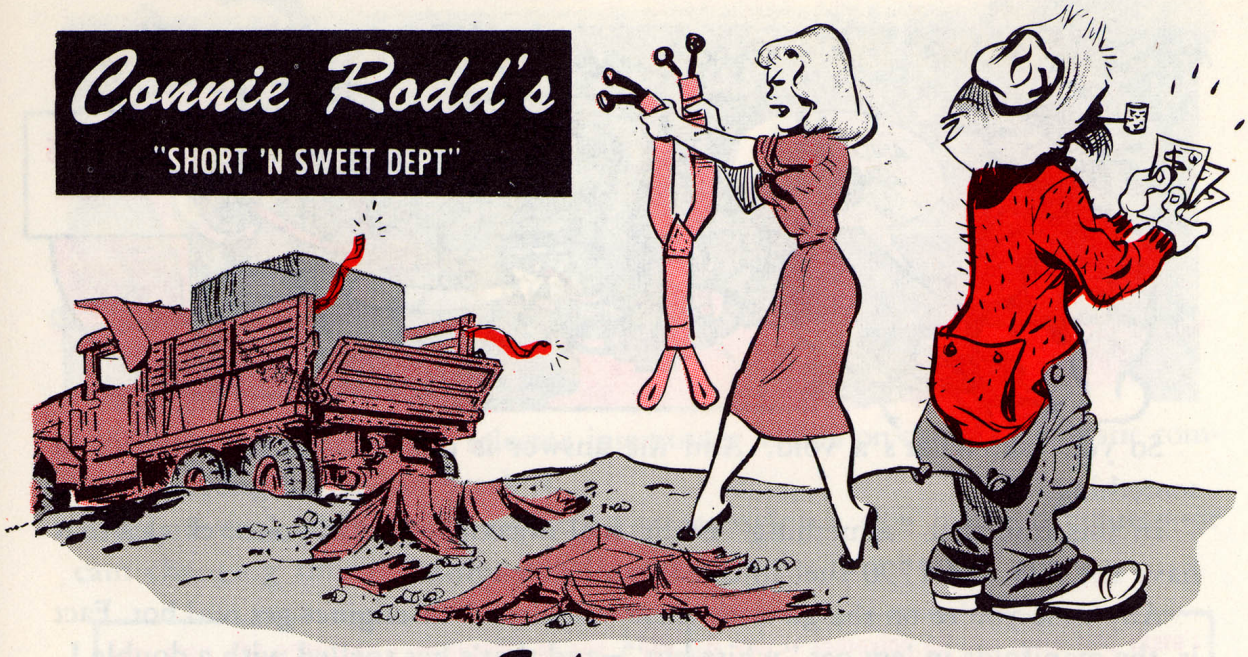
When making with the wrenches, make sure you don't twist the tubing.

So, just because it only takes you a couple of minutes to pull these before and after operation once-overs—don't knock them.

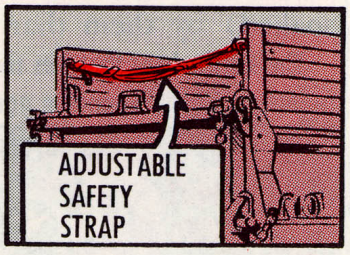
Comes a time in every guy's life when it pays to take a good look and a quick feel.

Connie Rodd's

"SHORT 'N SWEET DEPT"



Safety strap



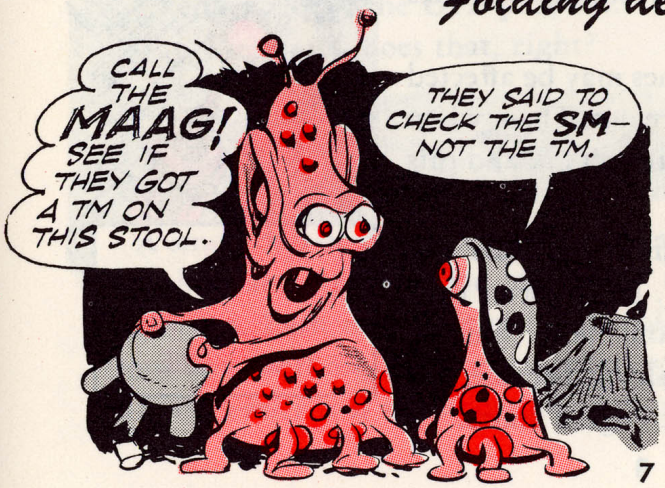
There's safety in numbers, but trying to find the number that'll give you that safety can be a tough job. That is—like getting the FSN for the adjustable safety strap that goes on the rear of your tactical 2½ and 5-ton truck's cargo body.

If you've been trying to get it by using the old 5340-F-000008 number or by FSN 4240-350-9056, and you still didn't have any luck—relax!

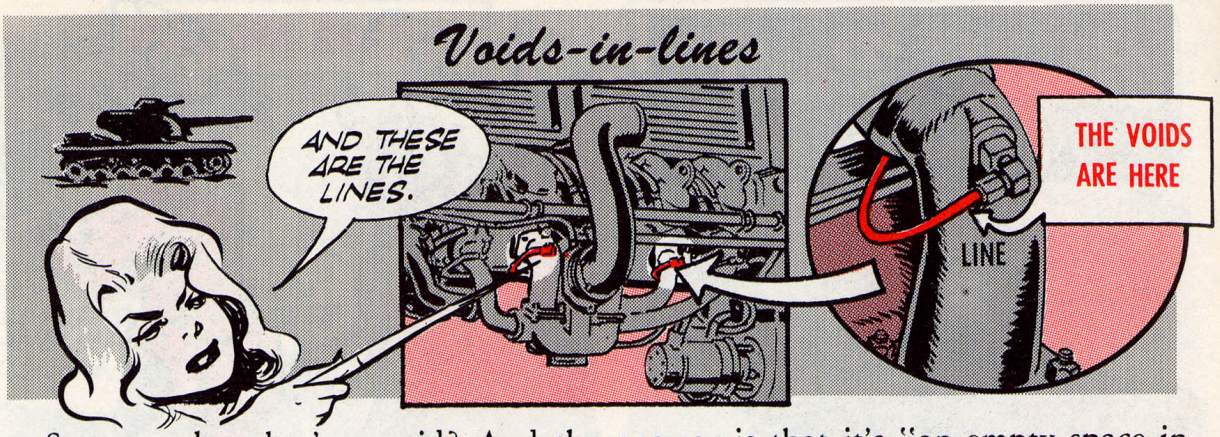
Here's a number you can jot down some place handy that'll get you that strap—FSN 5340-536-0186. The nomenclature to go with it is Strap, Webbing.

Remember, it's a Chemical Corps item because the Chemical Corps has been given logistic responsibility for safety equipment.

Folding desk stools



Time was when you couldn't get the folding desk stools separate from the plywood field desk (FSN 7110-267-1996). But no more. Now you'll find the stools (Stools, Folding, FSN 7105-282-0684) and the desk (Desk, Field, plywood body, FSN 7110-267-1996) both listed in SM 10-C6-10-SL (31 May 61).



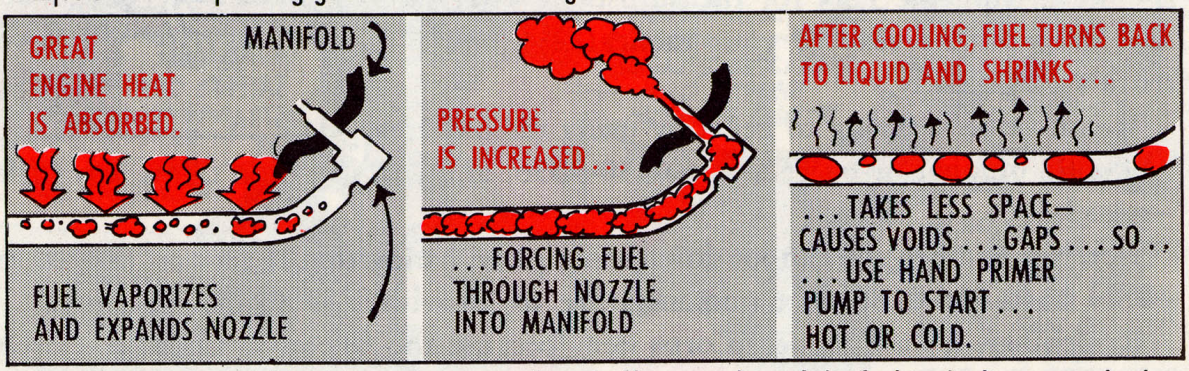
So you ask, what's a void? And the answer is that it's "an empty space in something."

In this case that "something" is the fuel injection lines in your vehicles that have the 895 and 1790 fuel injected gasoline engines.

Any time you're on the go with these vehicles, their engines get real hot. Fact is, the manifolds in 'em get "white hot"—and that's hot spelled with a double L.

So-o-o, when the engine's turned off, much of its heat is absorbed (heat soaked) by them thar fuel lines.

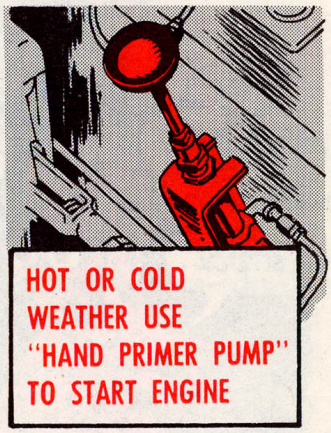
The terrific heat that hits the fuel lines vaporizes the fuel, putting a lotta pressure on the fuel in the injector lines. Expanding gases are forced through the nozzles out into the manifolds.



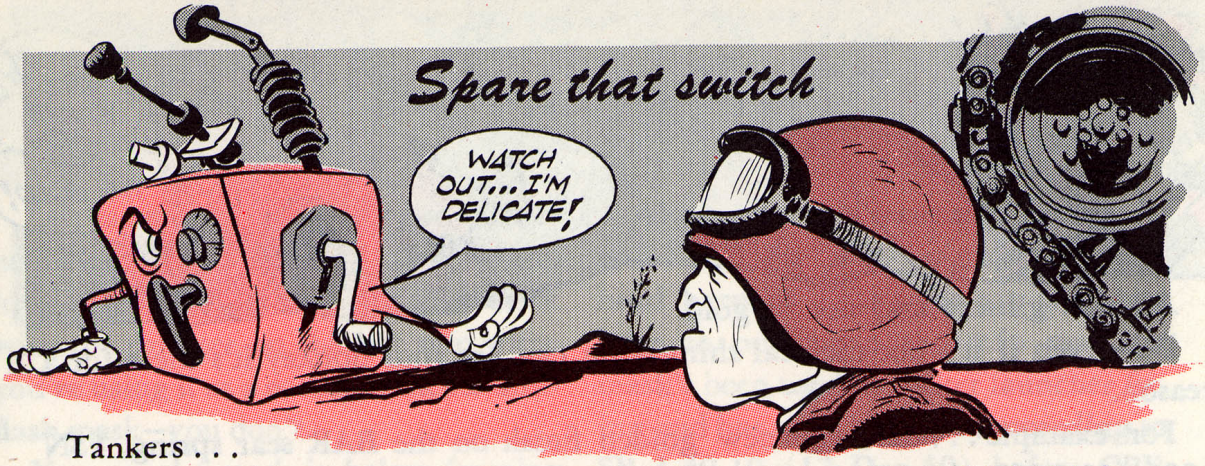
That's when the troubles begin. The engine'll cool off . . . natch, and the fuel in the lines turns back to liquid and shrinks so it takes up less space. So a gap or void is left in the line.

The only way the gap can be filled is to do a lotta crankin'. And this drains a lotta juice from the batteries and is hard on the starter.

As your engine cools down, some lines may be affected by this injector-line gap while others are not. Then, when the engine's started, it'll miss and run rough . . . and this ain't good.



Give those engines a break. Each time you start the vehicles, use the "hand primer pump". Be it hot or cold —use it while cranking the engine. And never use the primer pump, **except when you're cranking,** because you could cause hydrostatic lock when the engine starts.

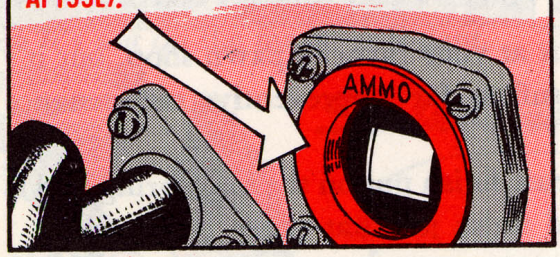


Tankers . . .

Watch that ammunition selector interrupter switch on the M13 ballistic computer—wrong moves can break it.

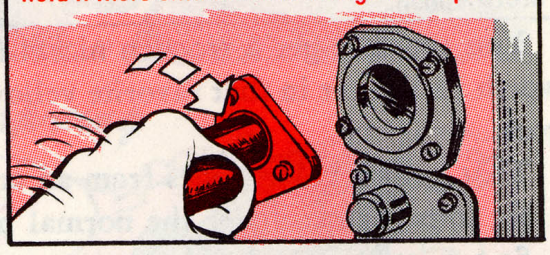
Play it cool when you're replacing or removing a cam in the computer—or cam changing time'll become switch busting time in a hurry.

Like man, the operation'll go smooth as silk if you make sure the cam roller is resting on the deepest cam in the computer—usually the APT33E7.



Or

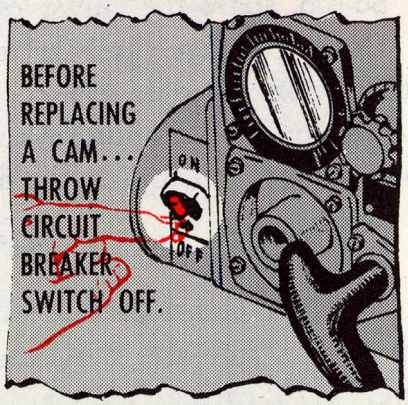
If you're removing all the cams and there's no place to rest the cam roller—you turn the ammo selector clockwise as far as possible and hold it there until the cam change is completed.



Either one of these two steps'll buy you insurance against busting the ammo switch—because they both keep the groove in the ammo handle from turning too much and kicking the actuating pin clear through the switch.

Natch, the very first thing you do before you start replacing a cam is to make sure you throw the circuit breaker switch to the OFF position.

But, everybody does that, right?

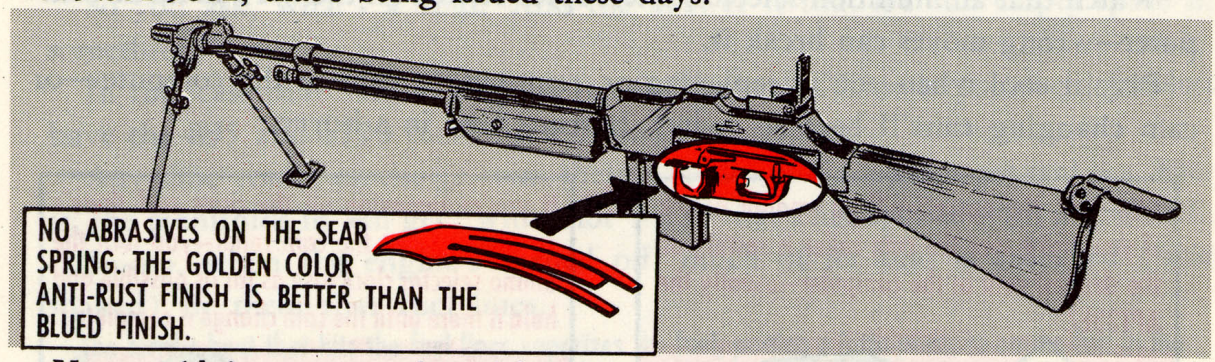


A small dab of paint stencilled (for uniformity) on each tool in your MOS tool kit and the outside of your tool box helps you keep track of your own. Each mechanic picks his color, making sure to keep the paint away from any working surfaces or areas where he grips the tools. The smaller the dab, the easier it is to remove on turn-in.

All that glitters may not be gold.

But--even if it's not the real thing—you can bet your donkey it's there for a reason.

For example . . . take the new golden finish on the BAR sear spring, FSN 1005-601-9662, that's being issued these days.



You couldn't get a wooden nickel for it at your favorite pawn shop, but it's worth its weight in that favorite yellow stuff as far as preventive maintenance goes.

That golden color comes from an anti-rust finish put on the sear spring and is a big improvement over the normal blued finish job that use to be issued.

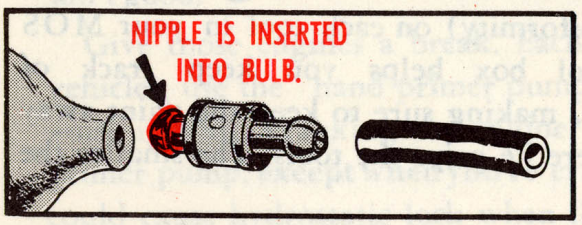
So-o-o, spare the abrasives.

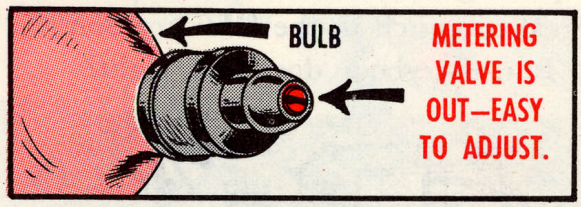
Don't get eager and try to remove the finish to make the sear spring match the rest of the color scheme.

All you do—in addition to working up a sweat—is to make it a lot easier for rust to start lousing up the firing operation on the BAR.

Your M23 CO kit

Here's a better picture of how the nipple fits into the sampling bulb of your M23 carbon monoxide detector kit. So now, do Percy a favor and X-out the illustration he used on page 28, PS 107.





And, here's a reminder of what Percy told you in PS 107 . . . Make sure the nipple is inserted into the bulb, and the metering valve is out. That way you can adjust the valve without removing the bulb.

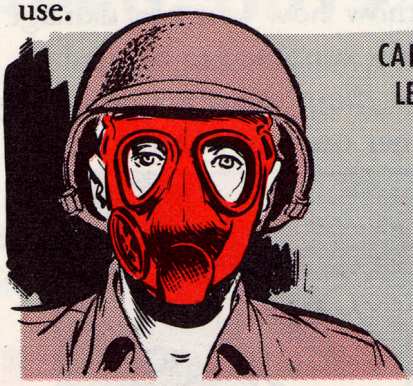
Makes no difference

Left is right or right is right—makes no difference. If you think you have to have an M9A1 protective field mask with the canister on the left side when you're using it as a rocket launcher anti-flash mask—you don't.

You use the mask in below freezing weather to protect your eyes and face from the launcher's back-blast and unburned propellants. But you don't have to use the canister on the mask—you'll have just as good a protection without it.

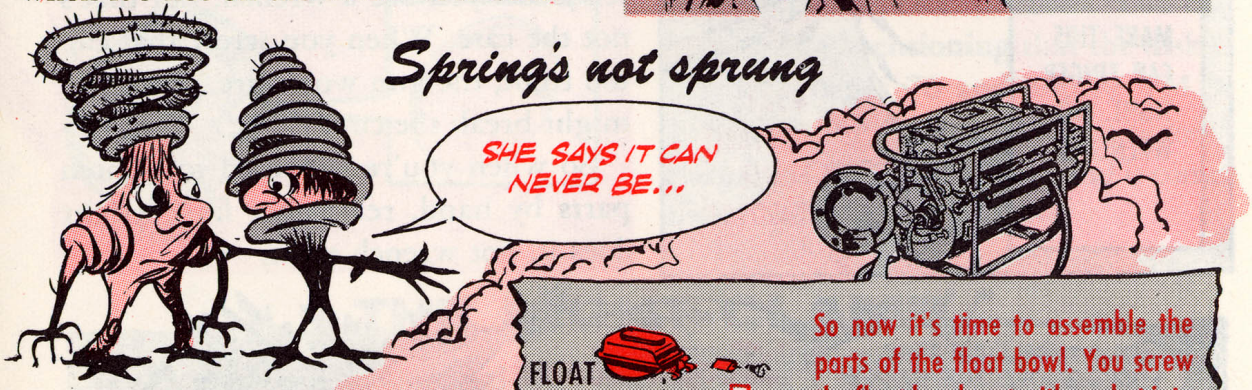
There are a couple of things to keep in mind. You still have to take care of the canister so don't go kicking it around when it's not on the mask—it'll dent.

Also, you don't want to forget to attach DA Form 10-197 tag to the mask's head harness. That's the tag that you have to put down the info that the mask's been used in rocket launcher firing and has to be inspected according to SB 3-30-10 (17 Dec 59) before CBR use.



CANISTER IS OFF, LEFT OR RIGHT, WHEN USING M9A1 AS ROCKET LAUNCHER ANTI-FLASH MASK.

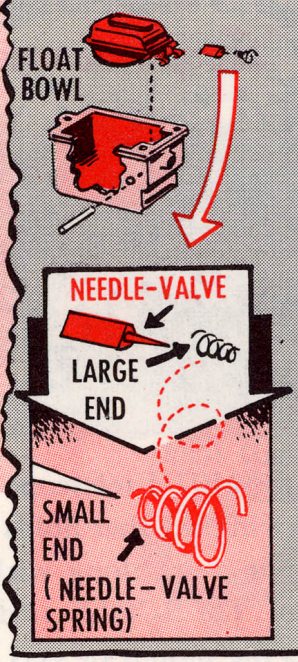
Spring's not sprung



Comes time for your monthly maintenance on the float bowl of your M3A3 smoke generator. And you've come to the inspection and maintenance.

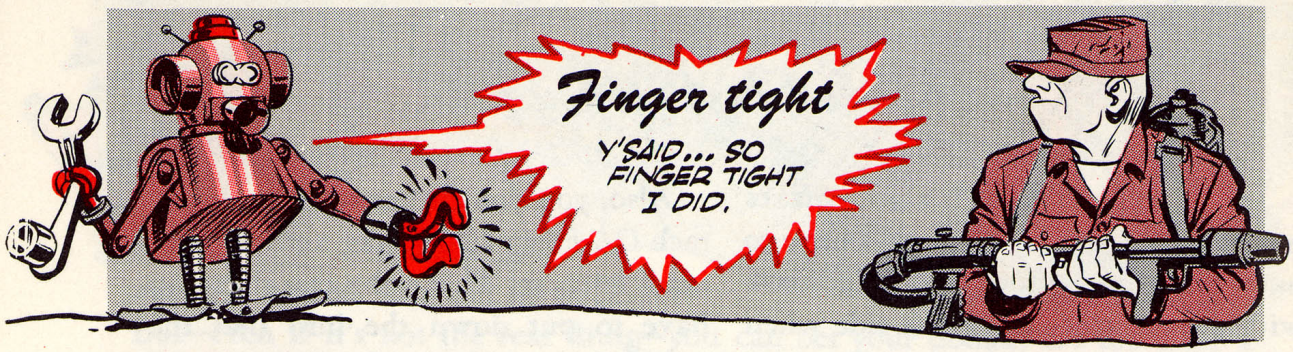
You clean all parts in dry-cleaning solvent and dry them thoroughly. Then you inspect them to make sure they're not worn too much or damaged.

If there are any parts that need to be replaced, you replace them. Then you replace the gaskets.



So now it's time to assemble the parts of the float bowl. You screw the float bowl seat with gasket into float bowl.

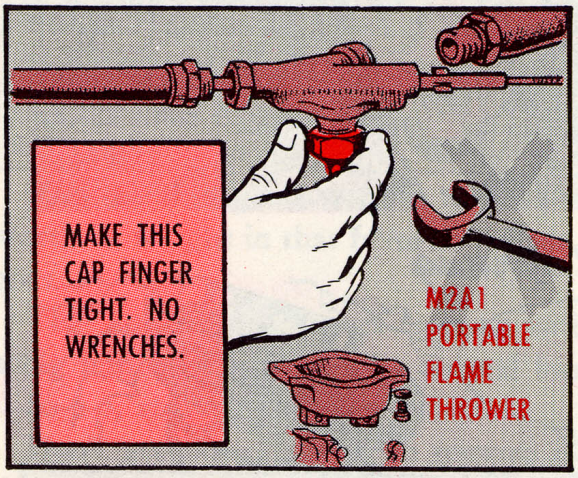
Next the needle-valve spring and valve go into the float bowl. Now here is where you switch the spring. Instead of placing that needle-valve spring with the large end over the needle-valve, turn it around and put the small end over the needle-valve. That way you'll get some spring out of the spring. Now you can finish assembling the parts into the float bowl and know that little spring's going to do its job.



You have tools to do certain jobs on your M2A1 portable flame thrower. Then there are jobs to be done without tools.

It's mighty important to know when and how to use tools, but it's even more important to know how you can damage your equipment when you use tools where they're not supposed to be used.

That's a good thing to keep in mind when you put the barrel and valve body assembly together on your M2A1.

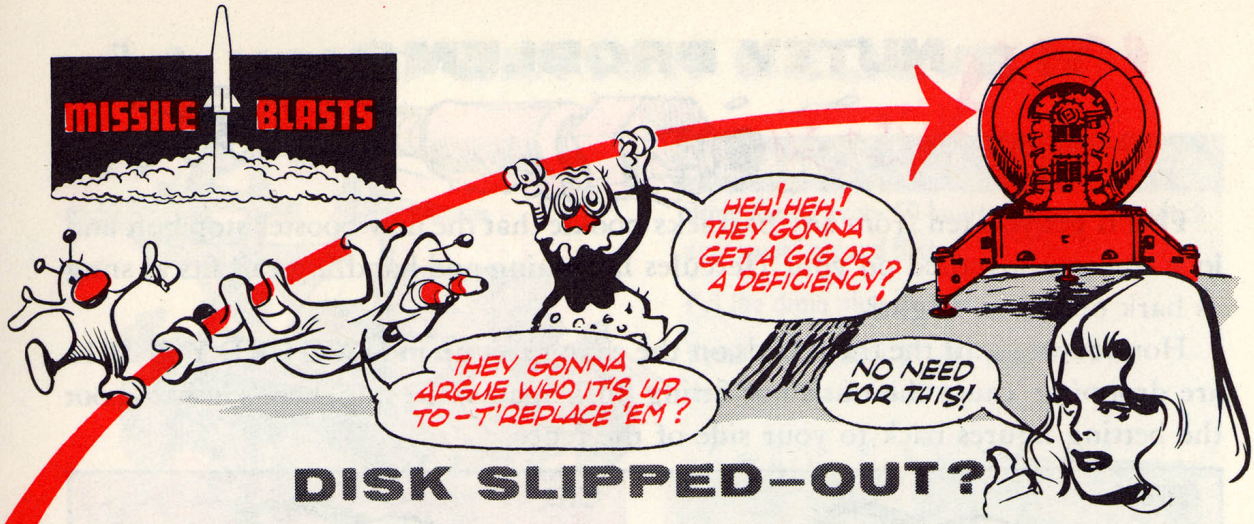


There's a ball joint cap found in the barrel and valve body that's to be screwed on finger tight.

Maybe you think you could do a better job if you use a wrench, but that's not the case. When you screw that cap too tight, the gun won't fire. Also, you might break the cup.

So when you're supposed to tighten parts by hand, remember finger tight does it, not wrench tight.

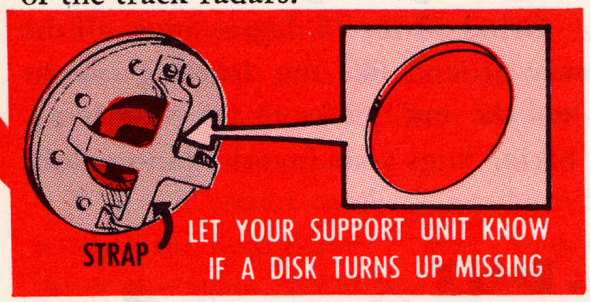
One sure-fire way to set up the M97H telescope in your M48A2 tank for damage is to forget to tighten the wingnut that holds the 'scope in its M103 mount. The scoop on tightening the wingnut, along with other info on installing and removing the telescope, is in TM 9-7022. It doesn't hurt to look over the TM before the telescope leaves the mount or gets put back in.



DISK SLIPPED—OUT?

One day . . . there was this inspection team making the rounds at a Nike-Hercules site.

And son-of-a-gun if the inspectors didn't give the outfit a deficiency because some disks were missing from one of the track radars.



You know the disks—they pop out when too much air pressure builds up in the radome. There's a cross-shaped strap in front of each disk so's it won't get lost when it blows out. Once in awhile, tho, a disk turns up missing.

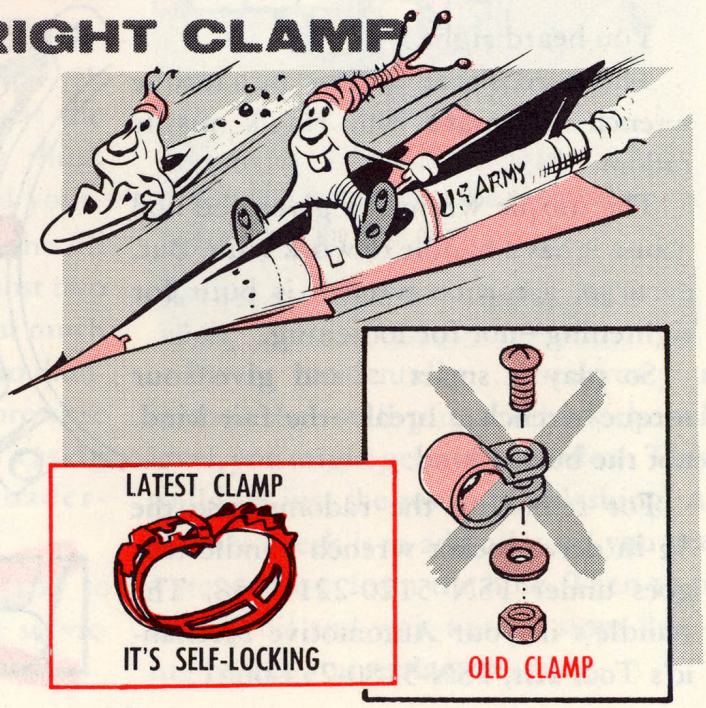
Just remember... it's up to your support unit to replace the disks. You can help 'em by mentioning that the disk is listed on pages 76 and 340 of TM 9-1430-250-35P/3 (Jun 61). The nomenclature is Disk, Solid, Plain, and it comes under FSN 1430-535-7484.

THE RIGHT CLAMP

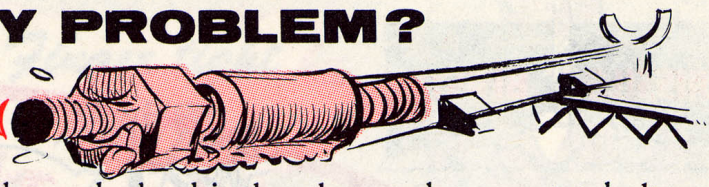
You still fiddling around with the old clamps for the battery cables in your Nike-Hercules missile? This one, that is. It has hardware that's easy to lose.

Here's the one you oughta be using. It's self-locking.

The latest clamp is listed under FSN 4739-621-5257 in TM 9-1410-250-20P/1 (Aug 61). Hold up, tho. The number has been changed to FSN 4730-289-5667 and the Ord Part No. is 8527355.

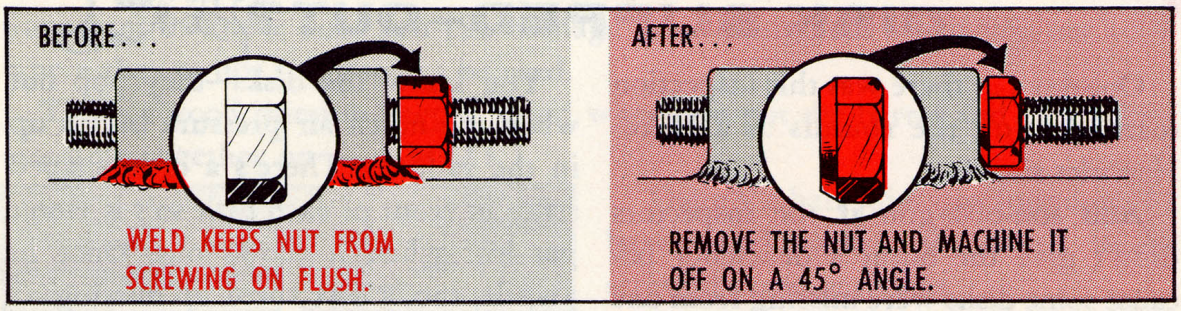


UGH NUTTY PROBLEM?



Five'll get you ten from any barracks bookie that the new booster stop bolt and lock nut you installed on your Hercules launching and handling rail fits as snug as bark on a tree. Right?

Howsoever . . . if the track odds on the change set up in MWO ORD Y86-W11 are dropping 'cause the nut's not fitting flush against the stop, here's how to boot the betting figures back to your side of the fence.

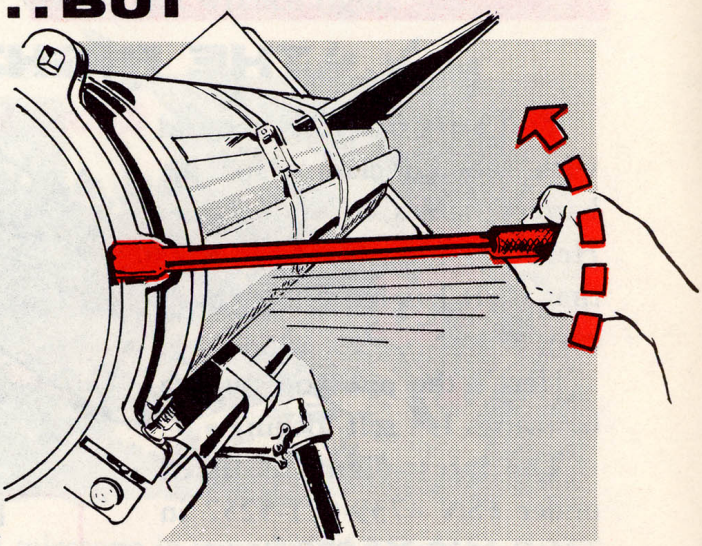


If the hex nut, FSN 5310-655-9286, sticks out like a sore thumb mainly on account of too heavy a buildup of the weld, solve the problem and miss a tour of Gigsville with this fix.

Remove the nut and machine it off on a 45 degree angle.

Grind off the 45 degree angle all the way around like the drawing shows and the nut'll take to the stop like a bikini hugs your favorite pin-up doll.

YES . . . BUT



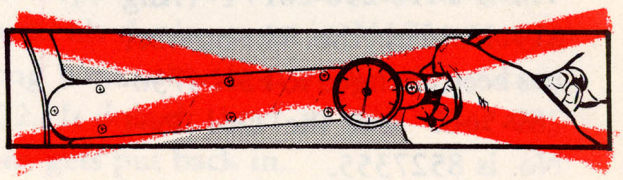
You heard right.

The word is that you can use a torque wrench to remove your Hawk missile radome.

The torque wrench is given the nod 'cause it has a handle to work with. But, even so, a torque wrench is built for tightening—not for loosening.

So play it smart . . . and give your torque wrench a break—the fair kind, not the busted kind.

For removing the radome, use the ½-in drive socket wrench handle that goes under FSN 5120-221-7958. The handle's in your Automotive Mechanic's Tool Kit, FSN-5180-754-0641.



YOU'D BETTER BELIEVE IT

LO 9-1450-500-10 (10 Jun 60) is right when it says that the final drive on your Hawk loader-transporter has a capacity of ½ pint of oil.

When it comes to checking the oil level in the final drive . . . that's something else again. What you **don't** do is check it at the fill plug.

Supposing you check the level at the fill plug . . . and you find that the oil's level with the plug. You think you're in good shape? Don't kid yourself. When the oil is level with the fill plug, that means you've got almost two quarts in the final drive. And that much oil can take you down the road to damaged oil seals because of the pressure that builds up in the unvented casing when you're running the loader-transporter.

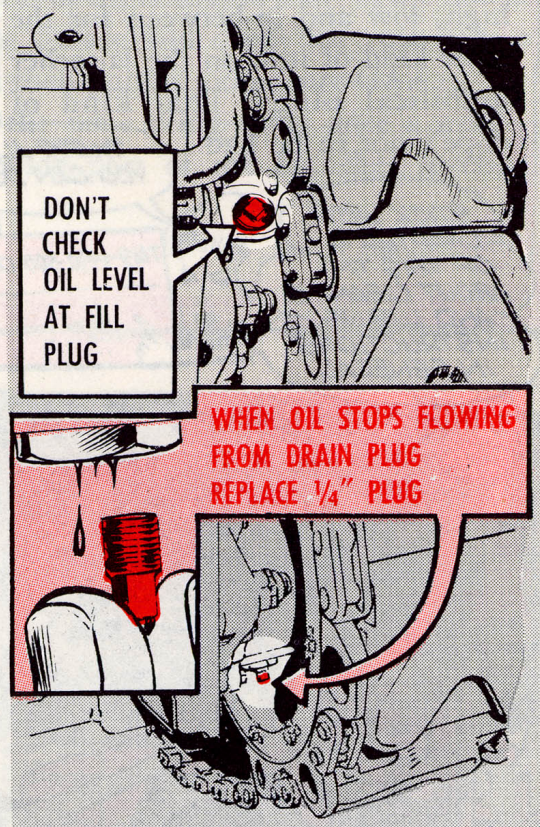
No . . . there's only one sure way to stay out of trouble when you're servicing the final drive.

Do it this way:

Drain the oil every 50 hours, or quarterly, whichever comes around first.

Put the drain plug back in.

Remove the small (¼-in) plug from the center of the drain plug.



Take out the fill plug and pour oil into the final drive until it runs out after you've poured a half-pint into the final drive.

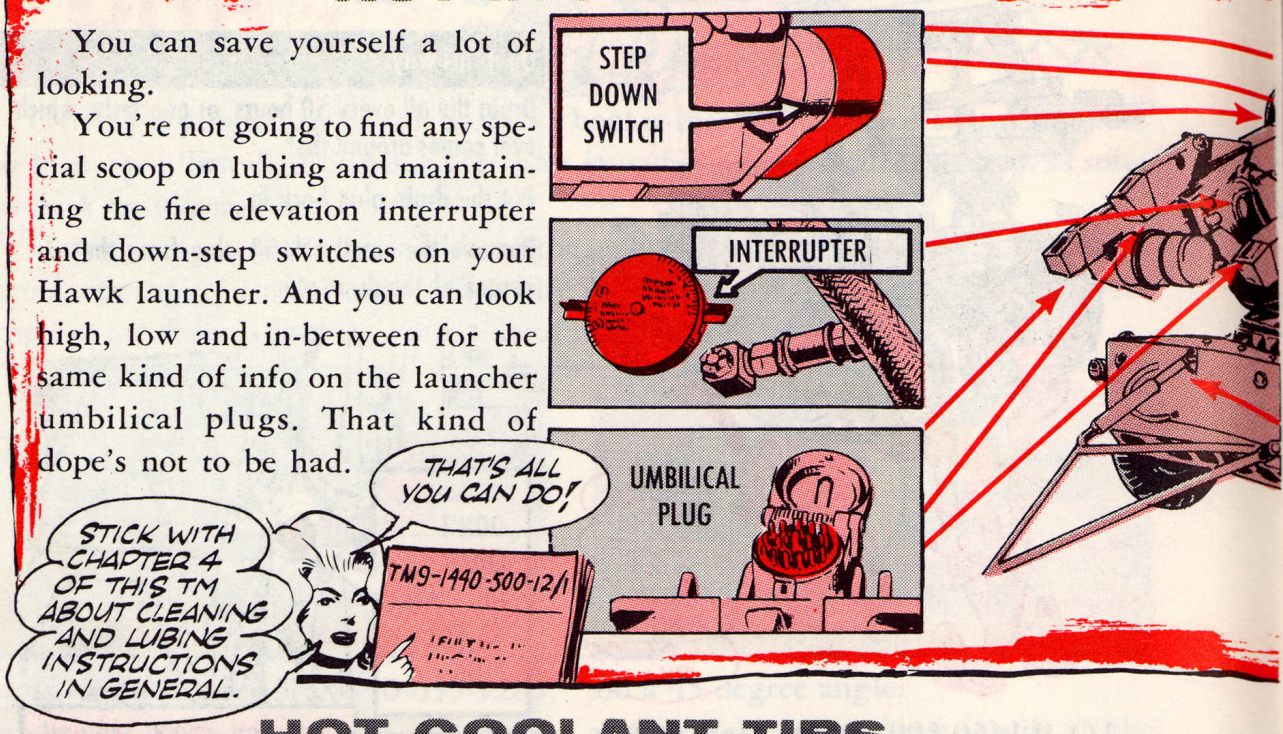
Now you can replace the ¼-in plug. You're all set.

By the incidentally . . . whenever you remove the small plug to check the oil level, you might get some overflow. This could be just the result of splashing. A surefire check is to add oil until you get a steady flow from the hole. Then stop adding oil and wait until it stops flowing before you replace the plug.

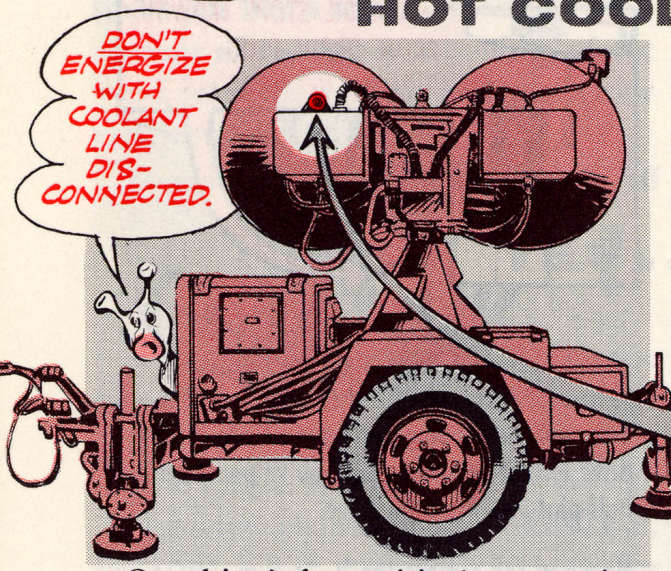
NOT IN PRINT

You can save yourself a lot of looking.

You're not going to find any special scoop on lubing and maintaining the fire elevation interrupter and down-step switches on your Hawk launcher. And you can look high, low and in-between for the same kind of info on the launcher umbilical plugs. That kind of dope's not to be had.



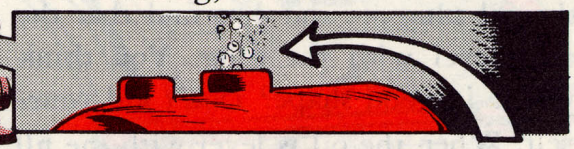
HOT COOLANT TIPS



One thing's for positively . . . you just don't energize the Hawk CW radars when the coolant line is disconnected. You know . . . like when you take the magnetron package out of the system.

And one reason's plenty good enough. Energizing the radars without the line being hooked up means the coolant pump will overheat and become damaged.

And speaking about damage . . . don't forget to check on how the coolant is flowing when you put in a new maggie package. Could be you'll find the flow has been stopped by an air lock—an air lock that'll lead to a beat up pump because of overheating. And the maggie'll take a licking, to boot.



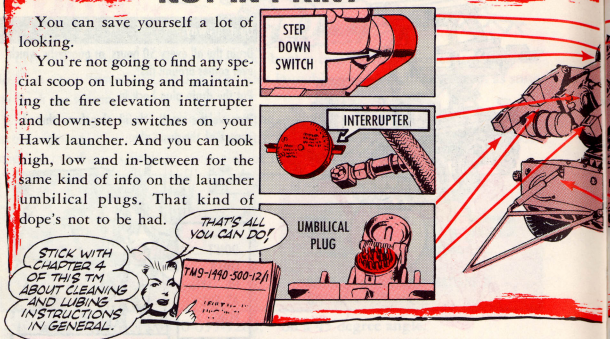
The odds're that you'll get rid of the air lock by removing the filler plug and letting the coolant run until the air bubbles vent themselves away. Then add coolanol OS 45—with the coolant pump running—to bring the coolant up to the proper mark on the coolant reservoir. If you don't do it this way . . . you'll put in too much coolanol.

If the venting deal doesn't work, call in your support unit.

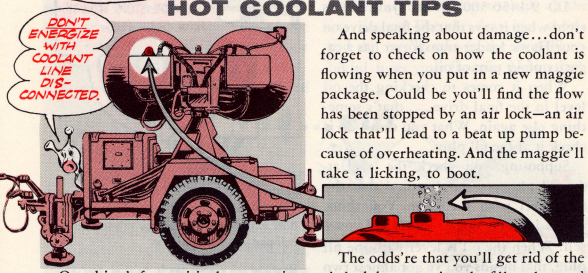
NOT IN PRINT

You can save yourself a lot of looking.

You're not going to find any special scoop on lubing and maintaining the fire elevation interrupter and down-step switches on your Hawk launcher. And you can look high, low and in-between for the same kind of info on the launcher umbilical plugs. That kind of dope's not to be had.



HOT COOLANT TIPS



One thing's for positively . . . you just don't energize the Hawk CW radars when the coolant line is disconnected. You know . . . like when you take the magnetron package out of the system.

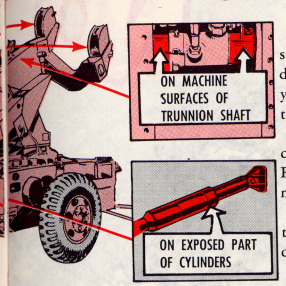
And one reason's plenty good enough. Energizing the radars without the line being hooked up means the coolant pump will overheat and become damaged.

And speaking about damage . . . don't forget to check on how the coolant is flowing when you put in a new maggie package. Could be you'll find the flow has been stopped by an air lock—an air lock that'll lead to a beat up pump because of overheating. And the maggie'll take a licking, to boot.

The odds're that you'll get rid of the air lock by removing the filler plug and letting the coolant run until the air bubbles vent themselves away. Then add coolanol OS 45—with the coolant pump running—to bring the coolant up to the proper mark on the coolant reservoir. If you don't do it this way . . . you'll put in too much coolanol.

If the venting deal doesn't work, call in your support unit.

GAA WILL HELP

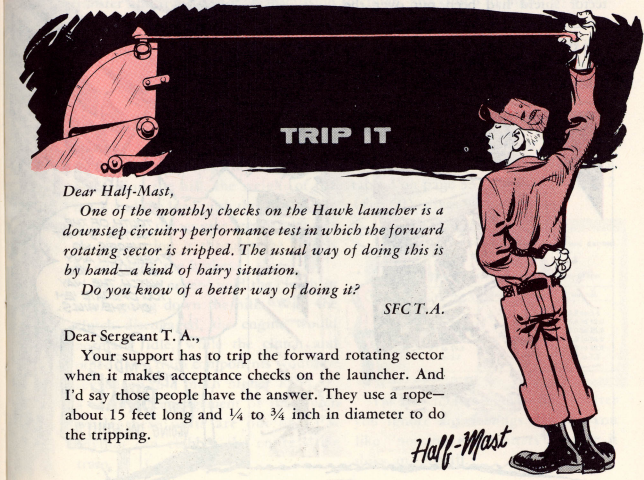


Next time you're lubing your Hawk launcher save some GAA for hitting a coupla places that don't show up on your lube chart—'specially if you're in a spot where it's kinda tough to tell the difference between humidity and rain.

It's a good idea to put some GAA on the machine surfaces of the trunnion shaft in the boom. Remove the grease and check for rust once a month and then put on some more GAA.

You do the same thing—only once a week—to the exposed part of the launcher leveling cylinders.

TRIP IT



Dear Half-Mast,

One of the monthly checks on the Hawk launcher is a downstep circuitry performance test in which the forward rotating sector is tripped. The usual way of doing this is by hand—a kind of hairy situation.

Do you know of a better way of doing it?

SFC T.A.

Dear Sergeant T. A.,

Your support has to trip the forward rotating sector when it makes acceptance checks on the launcher. And I'd say those people have the answer. They use a rope—about 15 feet long and ¼ to ¾ inch in diameter to do the tripping.

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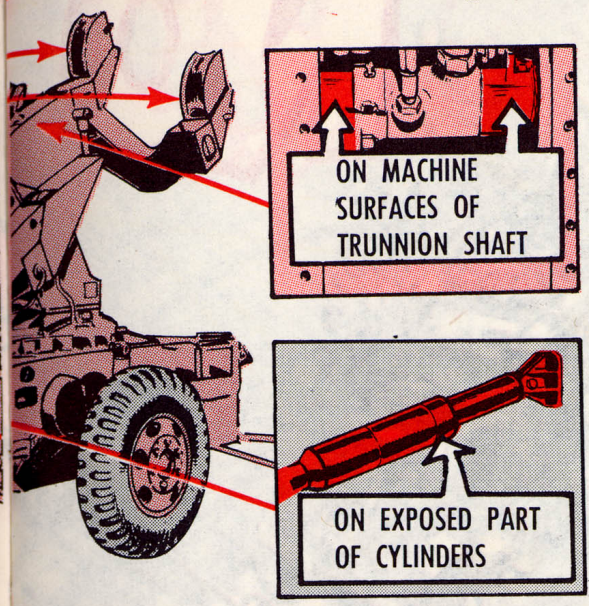

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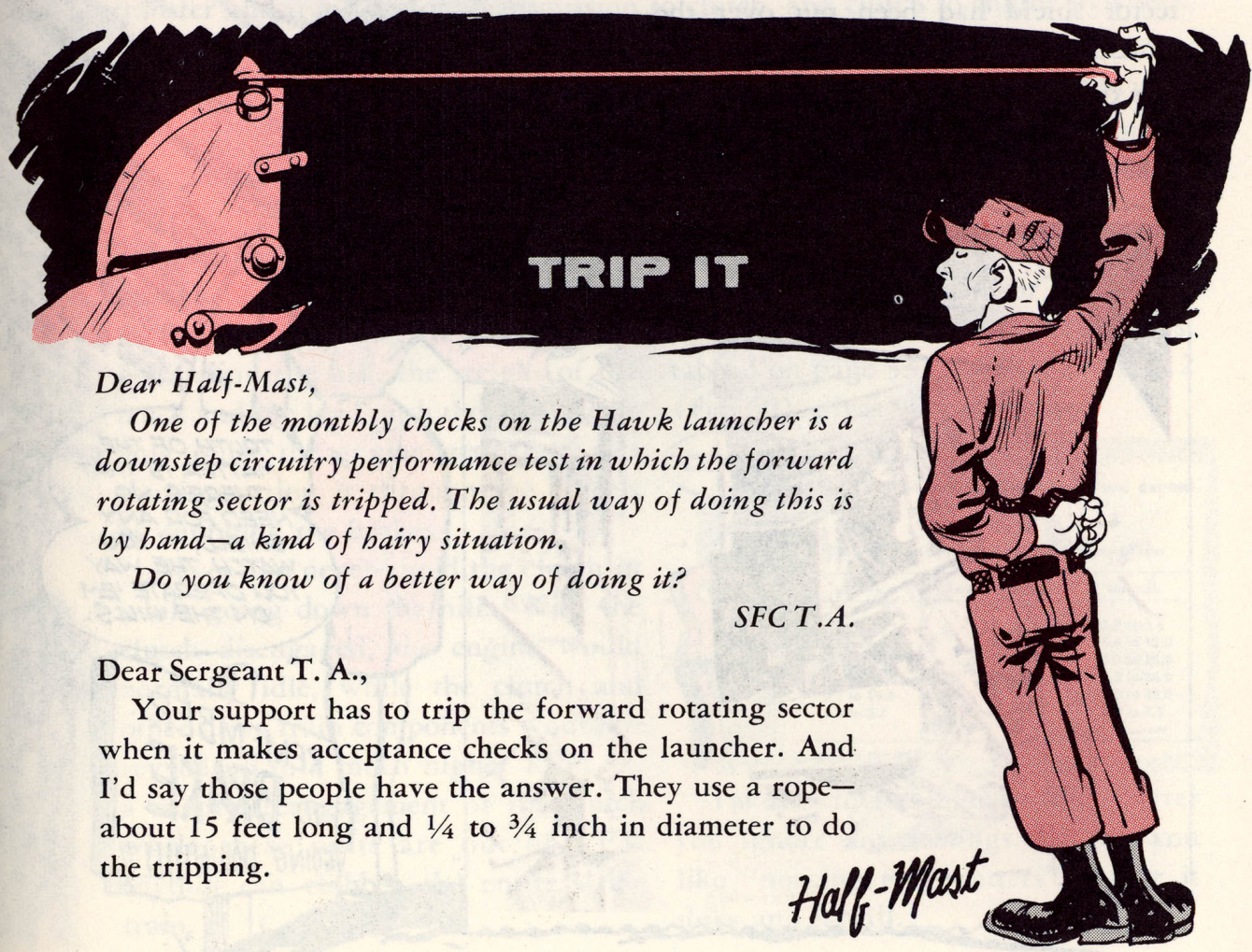

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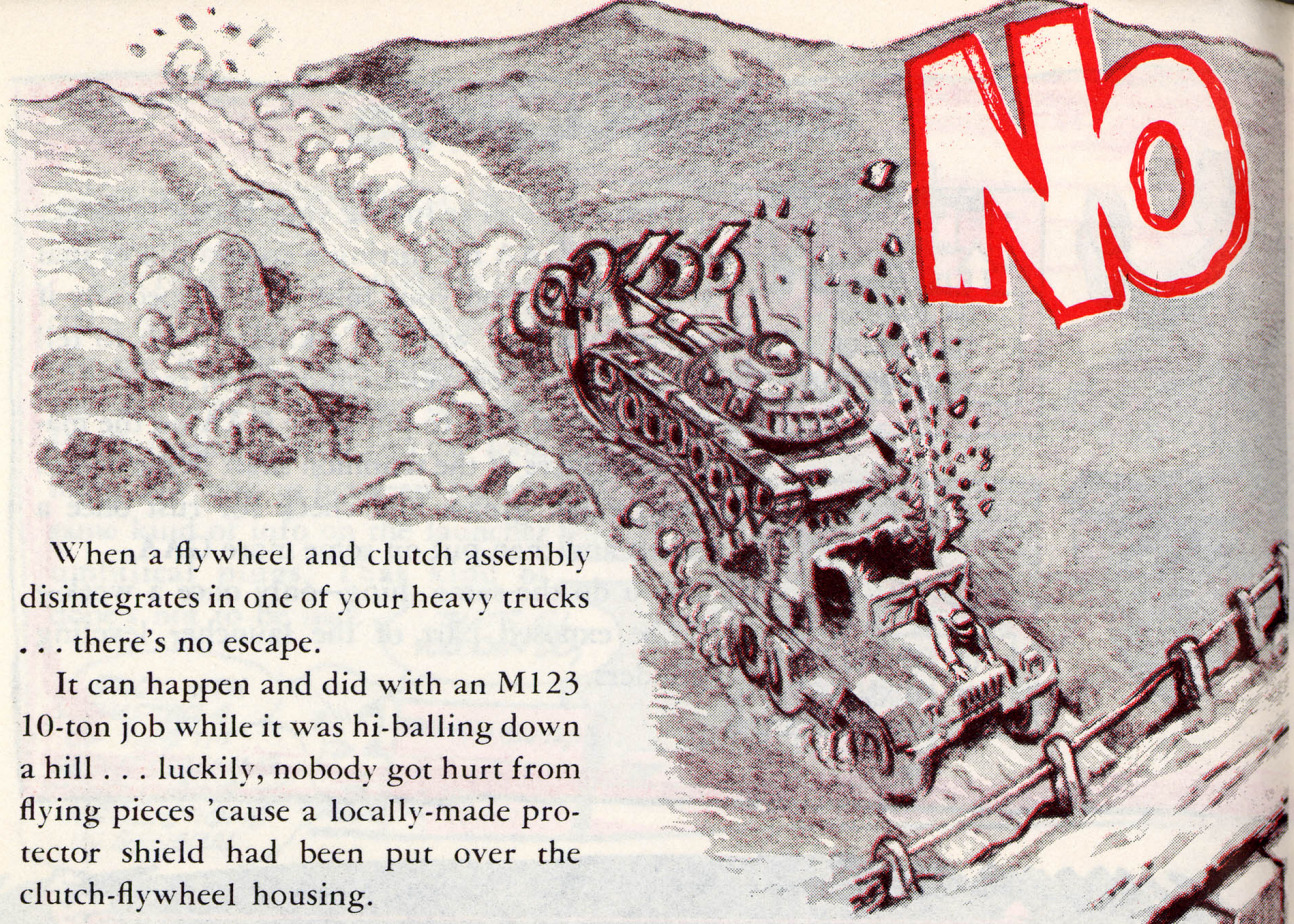

When a flywheel and clutch assembly disintegrates in one of your heavy trucks . . . there's no escape.

It can happen and did with an M123 10-ton job while it was hi-balling down a hill . . . luckily, nobody got hurt from flying pieces 'cause a locally-made protector shield had been put over the clutch-flywheel housing.

THE SHIELD GOT PUT THERE BECAUSE THIS HAPPENED ONCE BEFORE . . . THE DRIVER AND ASSISTANT WERE SERIOUSLY INJURED . . . AND THE CAB TOOK A REAL SHELLACKING.

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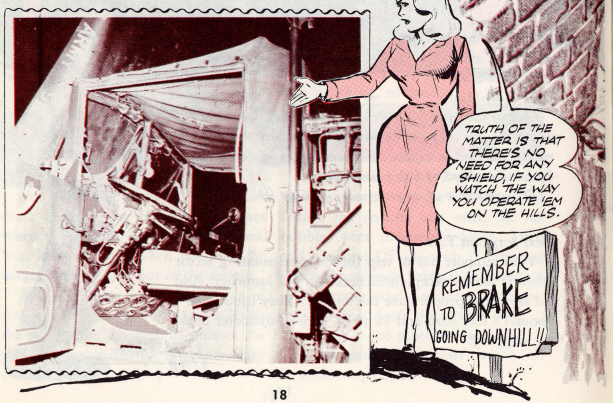
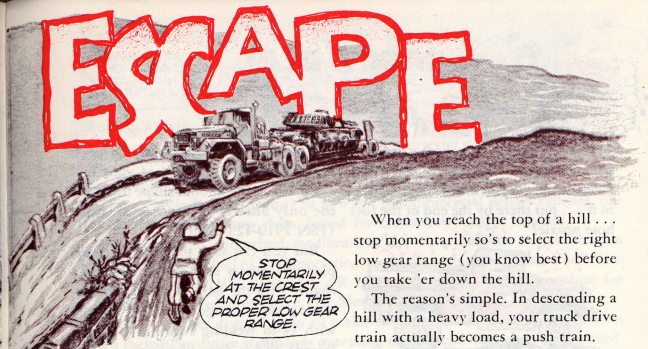




When you reach the top of a hill . . . stop momentarily so's to select the right low gear range (you know best) before you take 'er down the hill.

The reason's simple. In descending a hill with a heavy load, your truck drive train actually becomes a push train.

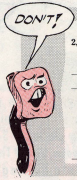
The load pushes the engine speed up (RPM increases) through the gear train—wheels to axle, axle to differential, differential to prop shaft, prop shaft to transfer and transmission, transmission to clutch, and clutch to engine flywheel.

This means that the only way to keep your M123's engine RPM within the governed range (2600 RPM) for which it was designed is to control that push from the wheels . . . by snubbing the brakes on the way down.

Remember, the engine governor has no control over the engine speed **unless the engine's pulling** the load. When descending the hill, the weight of the truck and the load push the engine; the only relief the engine gets from this shoving action is through the wheels by snubbing the brakes.

Never—no never—hold the clutch in while going down the hills. With the clutch disengaged, the engine would normally idle, while the clutch and other drive train components would be revved up to a much higher RPM . . . a sudden reengagement of the clutch while these units are out of RPM rhythm can clobber the entire drive train.

Always check out and stick with the allowable road speed for each gear range you've chosen. For the M123's, table I on page 33, TM 9-2320-206-12 (Feb 60), gives with this poop:



WARNING: Engine speed must not exceed 2,600 rpm at anytime.

Table I. Road Speeds at 1,500 to 2,600 Engine rpm

Mph low	Transmission gear	Mph high
1.2 to 2.2	1	3.0 to 5.5
2.6 to 4.8	2	6.8 to 12.0
3.0 to 6.4	3	9.0 to 16.0
6.0 to 10.4	4	15.0 to 26.0
9.7 to 16.8	5	24.0 to 42.0
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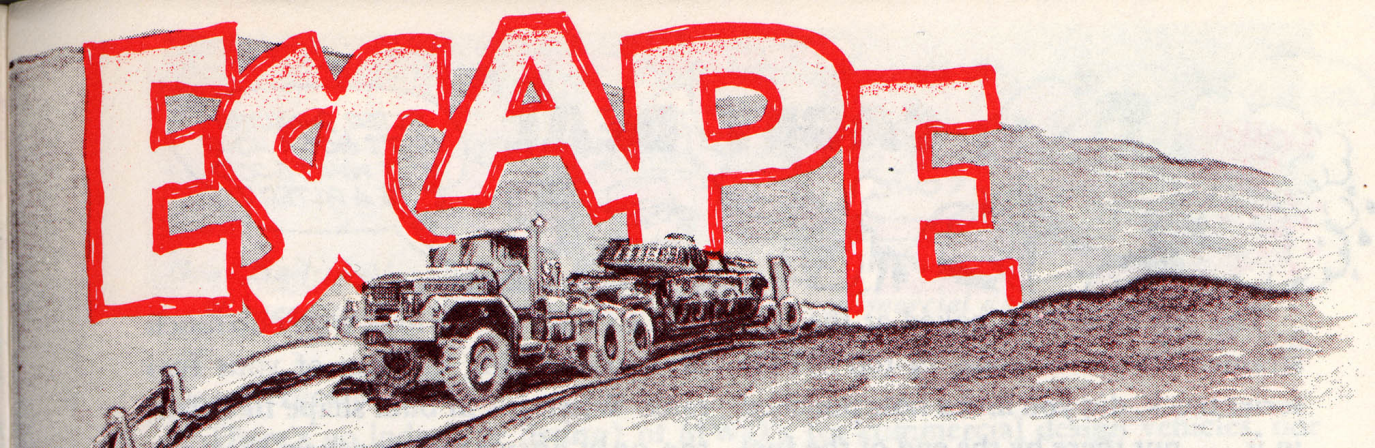
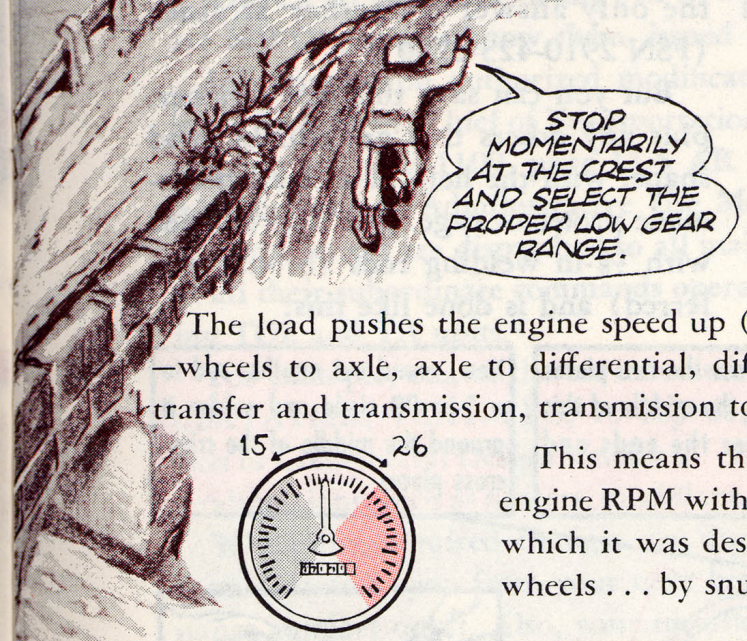
ESCAPE





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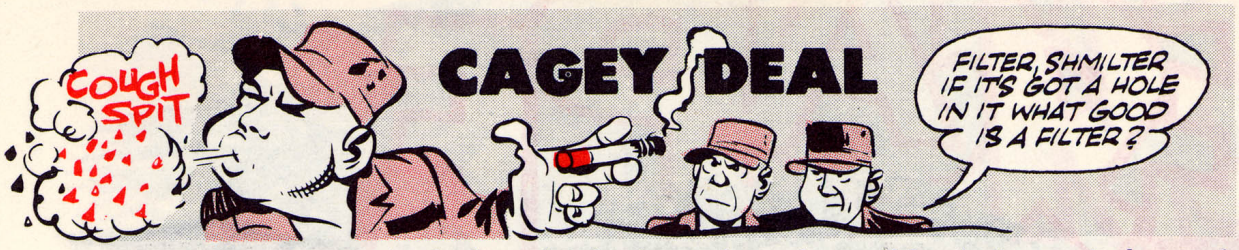
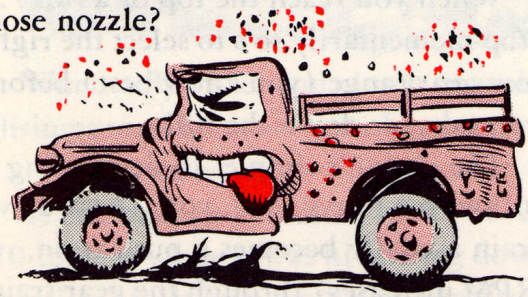


The last time you looked at the fuel strainer screen in your ¾-ton G741-series truck, did you find a hole punched in it . . . put there by the end of the fuel hose nozzle?



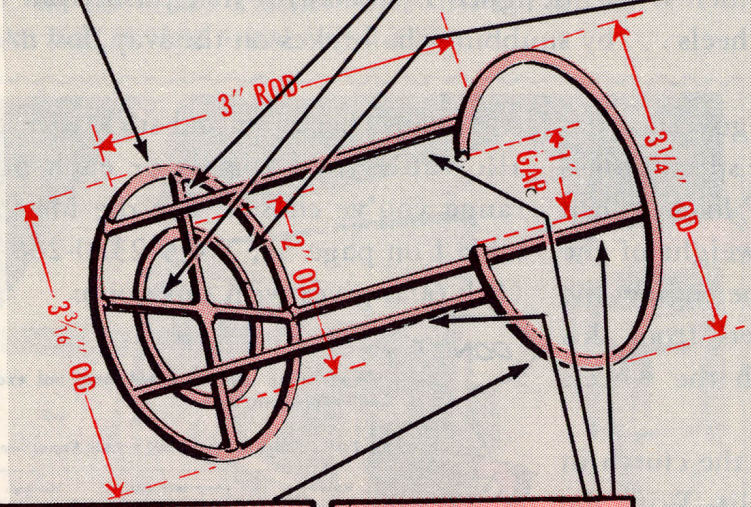
A strainer with a hole won't do much of a job keeping dirt out of your fuel tank. When it's in bum shape like that, the only answer is another strainer (FSN 2910-423-2780).

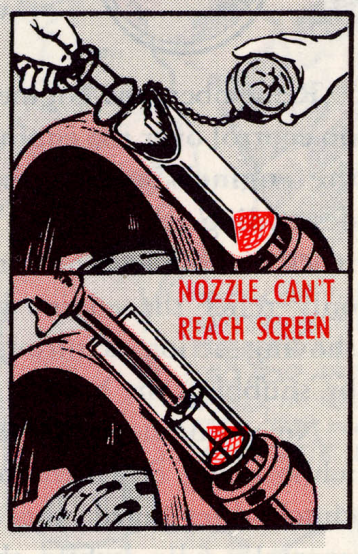
But you can save this new strainer, plus any others that are still in good shape, with the help of a small home-made protector cage. The cage is made with ⅛-in welding rods (bronze preferred) and is done like this:

First, round out a piece of rod to about 3 3/16-in OD and solder the ends together.

Then, criss-cross the two pieces of rod across the middle of this piece. Solder the ends and middle.

Now, round out another rod to a 2-in OD circle and solder it around the middle of the criss-cross pieces.

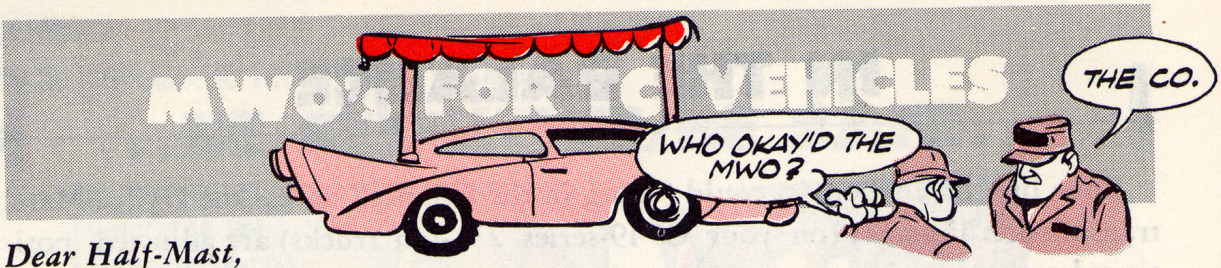




With another rod make a 3 1/4-in OD circle, only this time don't solder the ends up . . . leave about a 1-in gap. This end goes in first. Doing this makes it easy to slip the cage down into the strainer and not clash with the chain anchor clip.

Lastly, join both circular pieces up by soldering three pieces of 3-in rod between them. The rods should be staggered around the two pieces about 3-in apart. Your finished job should look like this.

When it's all done the cage bottom shouldn't touch the strainer screen. With this cage in your gas tank filler neck, the fuel hose nozzle can't slip down deep and poke holes in the screen.



Dear Half-Mast,

Where can I find a listing of MWO's for commercial design vehicles?

Sgt M. S. B.

Dear Sergeant M. S. B.,

There's no index (or listing) of MWO's for commercial design vehicles, nor are MWO's, as you know them, issued for commercial design vehicles.

Information on authorized modifications for those vehicles is published in letter form by the Chief of Transportation, as the changes come about. You'll also want to see para 1109, page 11-5 AR 58-1 (Jan 1962) "Joint Procedure for Management of Administrative Use Motor Vehicles."

These letters are dispatched to all major commanders for further distribution to all their subordinate commands operating commercial design vehicles, including TOE and TA units.

For example, one of the current listings of authorized modifications is: Letter, USATATMA, TCATM-FO, 15 Sep 61, Subject: "Modification and/or Conversion of Commercial Design Vehicles." The letter lists both required and optional modifications, such as heaters, mud-flaps, mirrors, signs, sirens and warning lights.

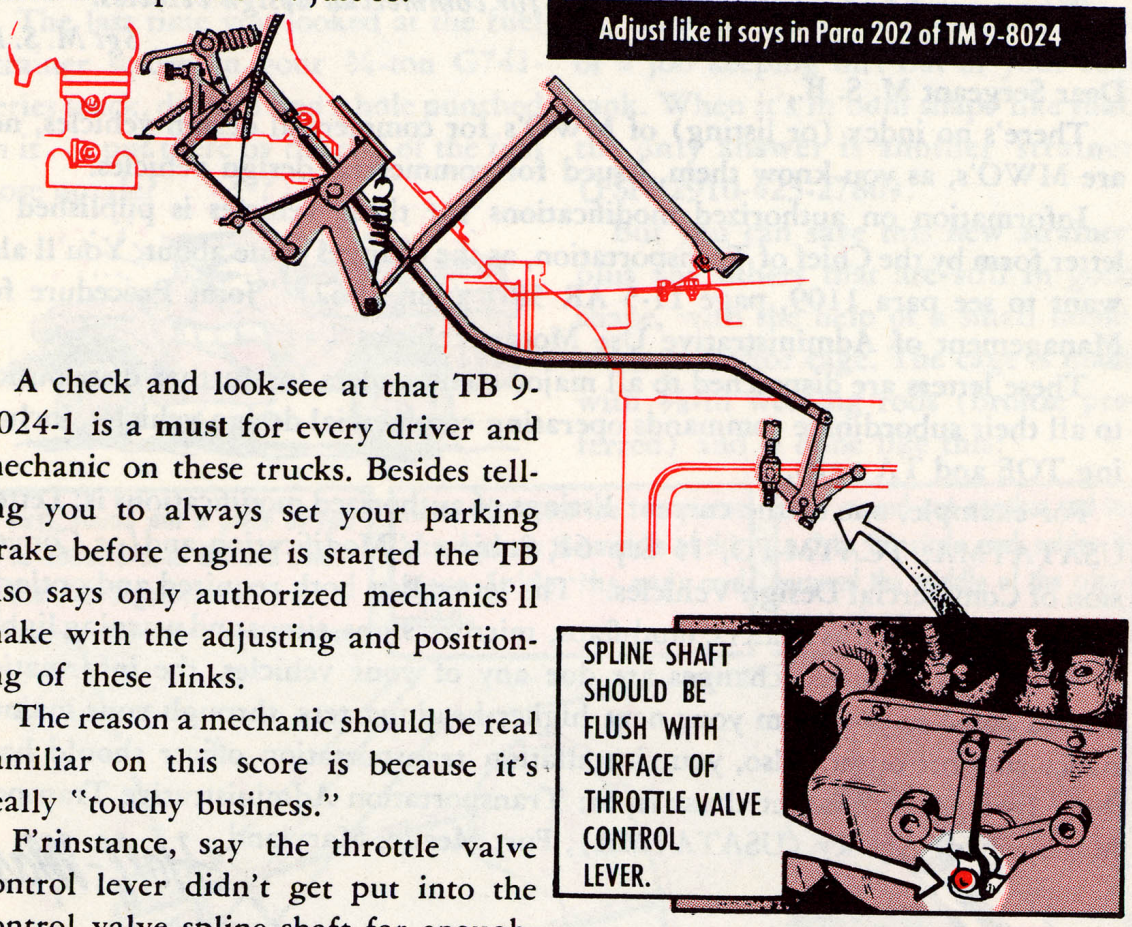
When any required changes are due any of your vehicles, the information should come to you from your next higher headquarters, through your maintenance support outfit. Also, your installation transportation officer should have these listings, or can get them from: Transportation Administrative Transport Management Agency (USATATMA), Fort Meade, Maryland. *Half-Mast*

WATER TANK TROUBLE?

If the drinking water in your tank trailers isn't too appetizing maybe MWO 9-2330-213-30/2 (16 Feb 60) hasn't been applied to your tank. That's the MWO that tells how to clean out the tank and paint it. So, if you have an M106, M106A1, M107, M107A1 or M107A2 trailer and the MWO hasn't been applied, better take it to your Ordnance support. (Remember the free issue on the MWO cleaning and painting kits is for two years from publication date of MWO.)

IN THE BALANCE

Your life, or anybody's, could "hang in the balance" unless the Hydra-Matic transmission linkages (on your G749-series 2½-ton trucks) are adjusted, positioned or inspected . . . just so.



A check and look-see at that TB 9-8024-1 is a **must** for every driver and mechanic on these trucks. Besides telling you to always set your parking brake before engine is started the TB also says only authorized mechanics'll make with the adjusting and positioning of these links.

The reason a mechanic should be real familiar on this score is because it's really "touchy business."

F'rinstance, say the throttle valve control lever didn't get put into the control valve spline shaft far enough, it'll allow the shift lever to wander off the spline and you'll lose control of the shift range. You'll put your shift lever into neutral, but that's not what you'll get on the shift pattern in the transmission. Guess you see the picture now??? You just might be in a forward gear . . . right?

Follow the TM 9-8024 to a tee when adjusting the linkages—no short cuts. When the throttle valve control lever is put on, make sure it's shoved on until the end of the shaft is flush with the outside surface of the lever, and then tighten up the lever bolt real tight.

Check the pins, levers, yokes, etc., for signs of wear and get new parts pronto if needed. If the splined ends are bad, get support to help out—even if this means deadlining the vehicle.

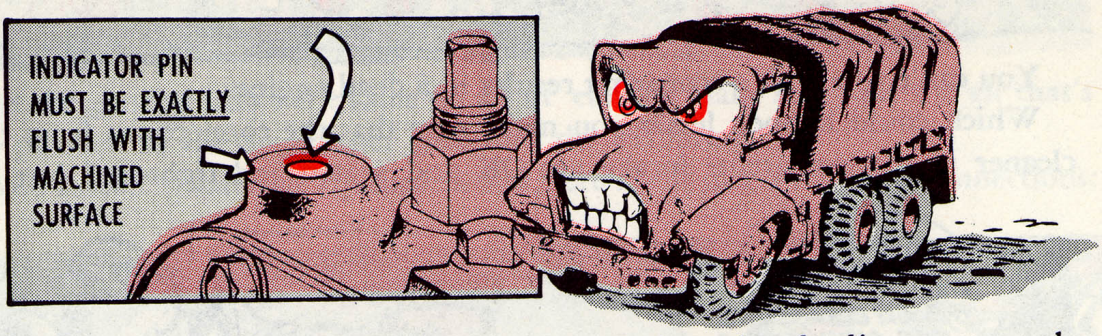
Making sure the serrations in the levers and the shafts match up and **not** forcing them into place, is a must.

Remember, you wouldn't want anybody pointing an M1 at you—loaded or not. The same thing goes for standing in front of any vehicle with a running engine—it might be loaded, so never do it.

MEMO

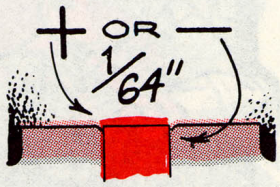
WITH HYDRAMATIC FRONT BAND SETTING

...BE SENSITIVE/BE SAFE...



There's only one way for you to safely set the front band adjustment on the hydramatic trucks.

The indicator pin must be **EXACTLY** flush with the machined surface of the transmission case. You've got hardly a hair to play with as you can see by the tolerance you're allowed. It's a mere + or − 1/64 inch. TM 9-8024 (para 201, page 354) uses capital letters to tell you to be EXACT about this adjustment.



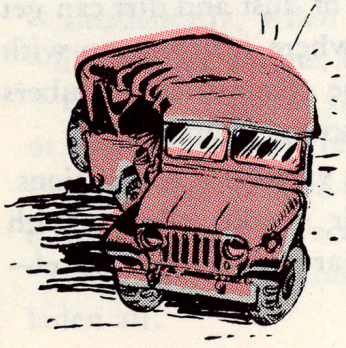
Anytime you're unable to do this like the TM says, it's time to have a talk with Ordnance.

And make a double note of this . . . although the transmission may work with the pin sticking out beyond what the TM allows, this setting exceeds wear limits, and in the end could run up a costly repair job.

So be safe all the way around. Let Ordnance know the very first time you find you can't get the pin down flush.

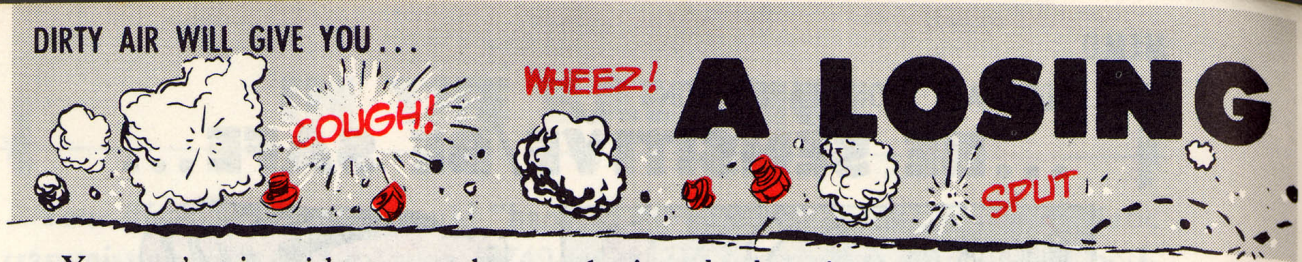
BLOWING YOUR TOP

Are you in a wet area where the canvas top of your jeep has the nasty habit of rotting away every year or so? Try giving it a coat of mildew resistant compound, Mil-M-13295A (FSN 8030-264-3840). This stock number will get you five gallons from Quartermaster which can be painted or sprayed on. Make sure you follow the instructions on the label before you give the entire surface a good coating.



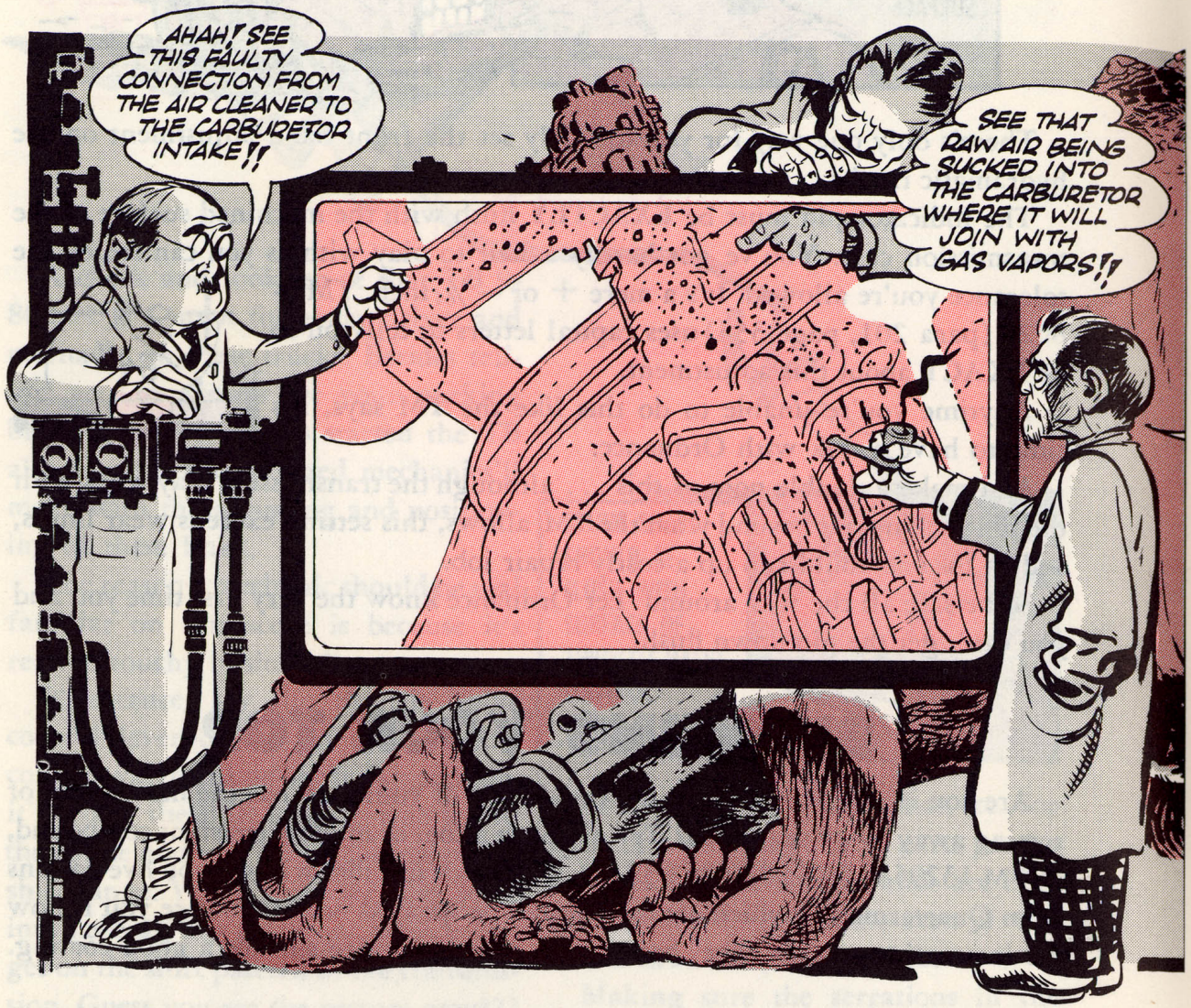
CIRCLE RIGHT

Supply shortages may have put some M38 steering gears in M38A1's or vicyversy. Gear ratios differ, but they fit. Remember one thing, tho. The steering knuckle adjusting bolt stays set the way the vehicle TM says. Turning circles are 19-ft for the M38 and 38-ft for the M38A1 no matter which gear they've got.



You can't win with a score that results in a dead engine.

Which could happen less'n you make sure that the connections from the air cleaner to the carburetor intake are OK and seated and tightened just right.



Because, if the connections are not right, raw air full of dust and dirt can get sucked along with the filtered air into the carburetor where it'll join up with gas vapors. Then the whole sorry mess'll move into the combustion chambers and scratch cylinders and pistons. And when they get scored—kaput!

Tactical and commercial-type engines, y'know, take a variety of connections. Some like the Quartermaster's NC-10 crane—have air intake elbows with flanges. Others—like the M38 Jeeps and the M20AF Garwood crane shovel—simply have hoses and clamps.

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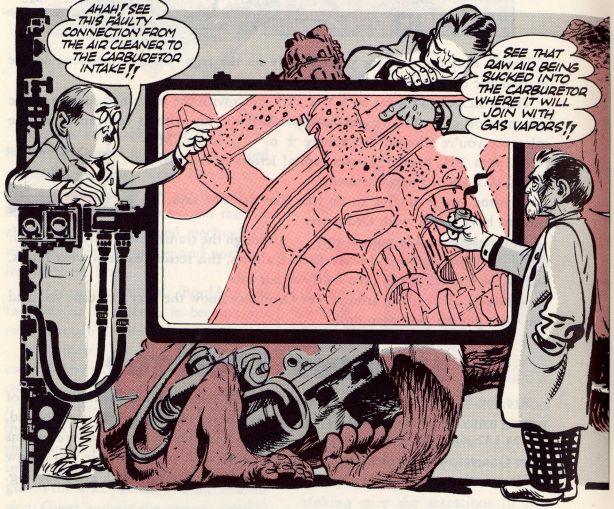

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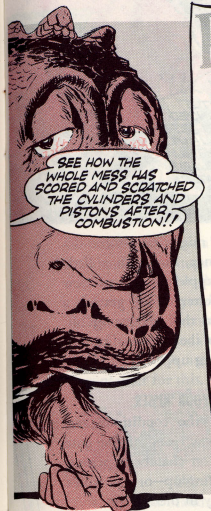
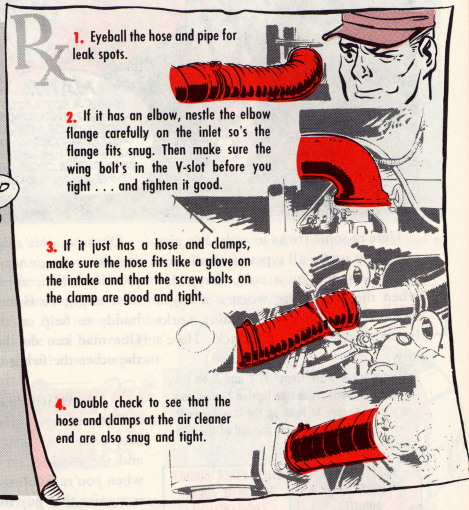
But the general idea's the same on all of 'em: To make sure only the air that's been purified in the air cleaner gets into the carburetor.

So no matter what your equipment has, here's how to get the right connections:





Incidentally, when you pull the engine and have it running on a test stand—like a tank engine, for instance—be sure to have an air cleaner hooked up.

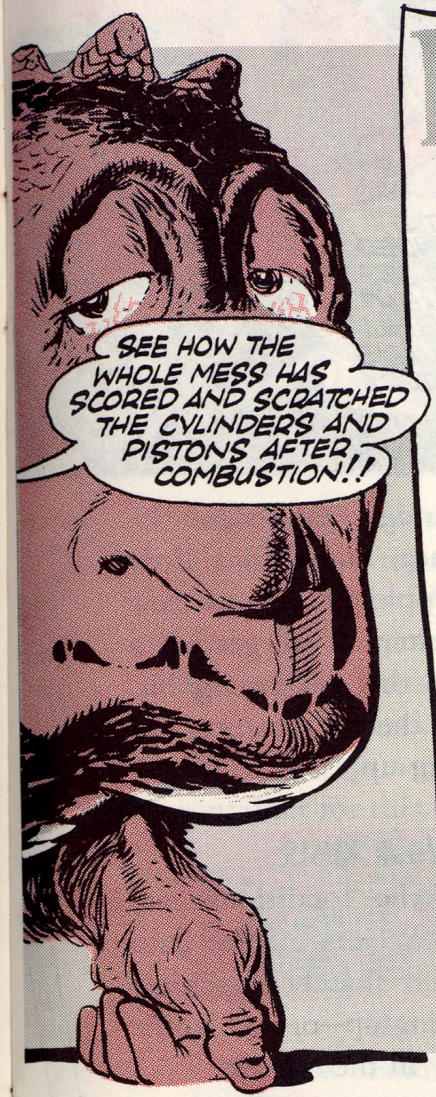
Or, if it happens you can't do this, at least run the engine in a tent or shop or some other dust-free area.

Or, if you do have to run it outside, pick a spot where no other vehicles are raising the dust. In fact, it might even be a good idea to wet down the area first.

In other words, don't miss a trick to protect that intake from sucking in dust-laden air.

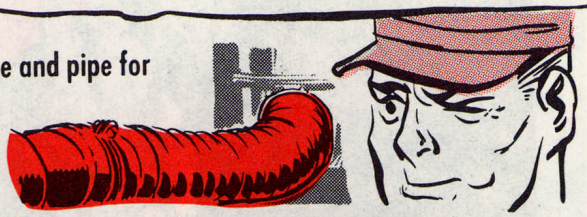
But the general idea's the same on all of 'em: To make sure only the air that's been purified in the air cleaner gets into the carburetor.

So no matter what your equipment has, here's how to get the right connections:

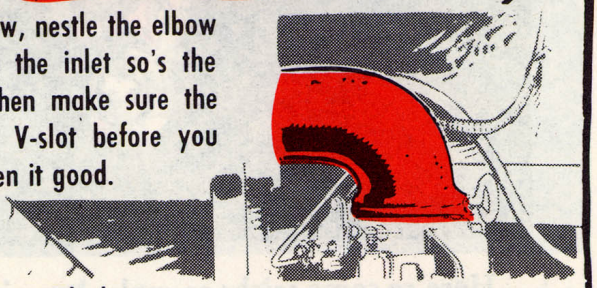


Rx

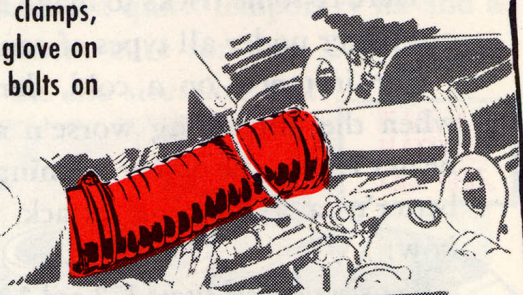
1. Eyeball the hose and pipe for leak spots.



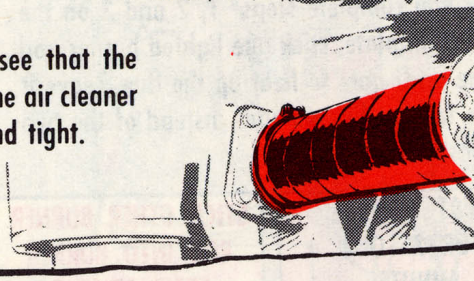
2. If it has an elbow, nestle the elbow flange carefully on the inlet so's the flange fits snug. Then make sure the wing bolt's in the V-slot before you tight . . . and tighten it good.



3. If it just has a hose and clamps, make sure the hose fits like a glove on the intake and that the screw bolts on the clamp are good and tight.



4. Double check to see that the hose and clamps at the air cleaner end are also snug and tight.



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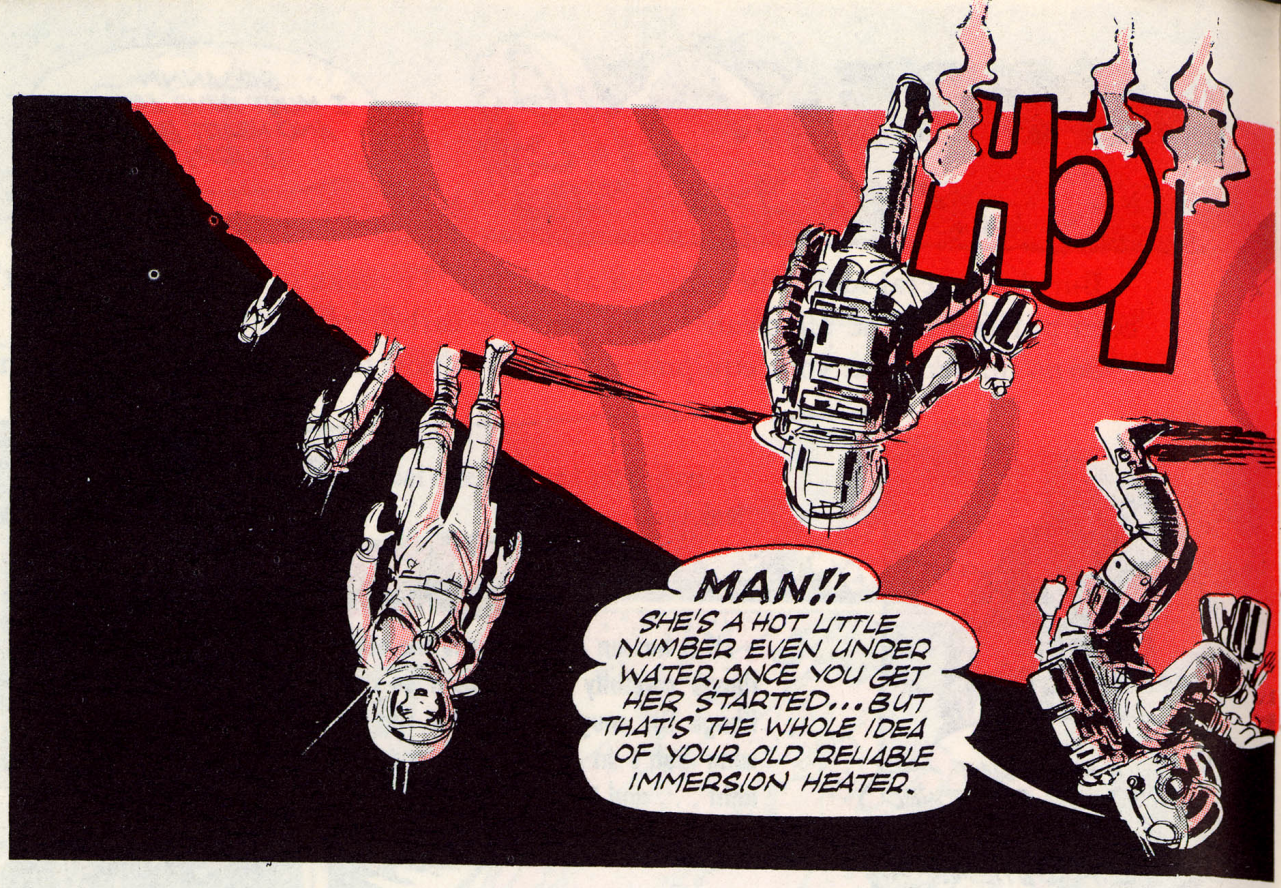
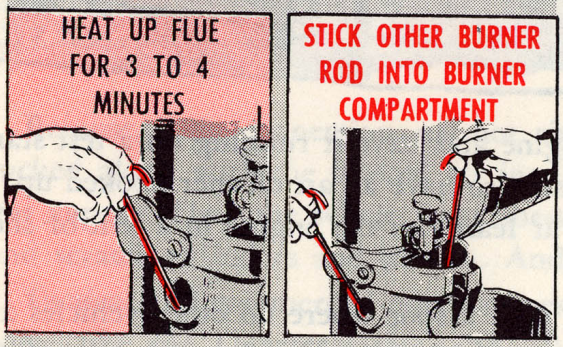


Here're some tricks to make her give out better under all types of conditions.

For instance, on a cold, damp day when the only thing worse'n a frigid heater is a couple of 'em, nothing works better'n a two-prong attack. Here's how:

After you complete steps 1, 2 and 3 on the instruction plate, stick one lighted burner rod in the draft gate to heat up the flue. Leave it there four or five minutes instead of the two the instructions call for.

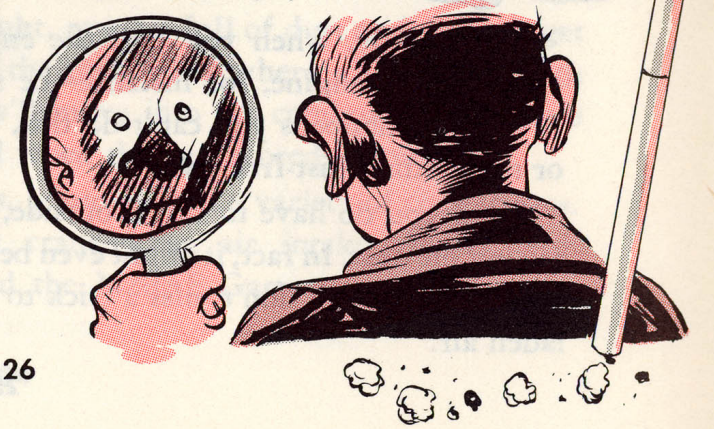


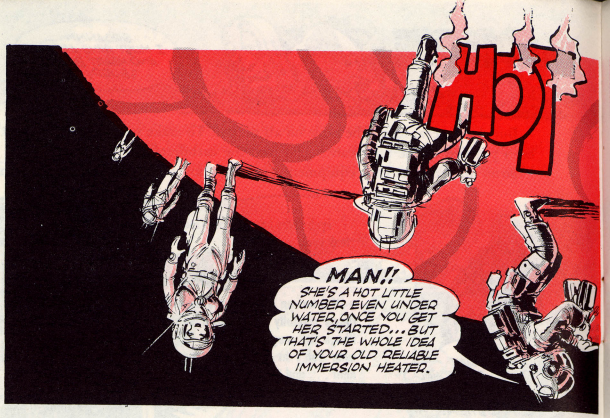
Then, without taking the first rod out, slip a second lighted rod into the burner compartment. Your heater'll light up with joy.

O'course, this might take some doing for a beginner, but with a little practice it'll be apple-pie easy. A new man might be better off by getting a buddy to help on this two-prong bit. One man can do the pre-heating and the other the firing up.

WATCH YOUR KISSER

But, whatever the conditions are, keep your face away from the flue gate and the combustion chamber opening when you're lighting up—or you won't recognize that guy in the mirror.





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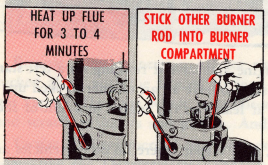

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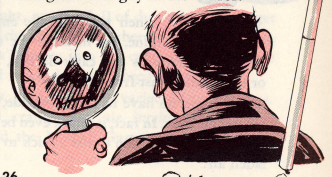
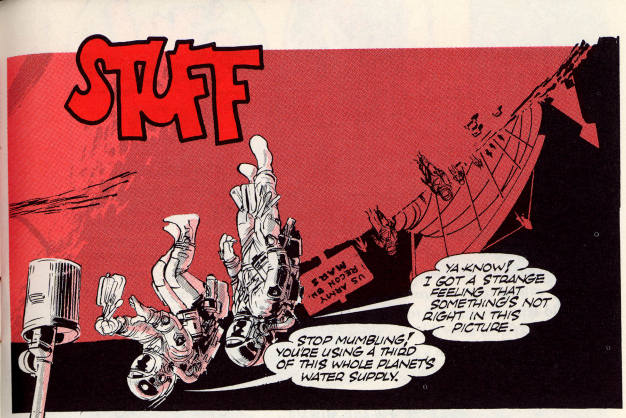


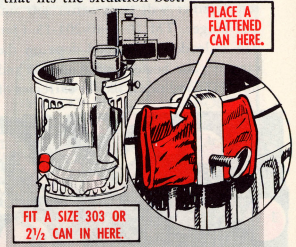


And, while you're at it, follow the other safety dope on the instruction plate. Never let the fuel drip into the heater before pre-heating the stack or lighting the burner. And never use the fuel valve to soak the rod before lighting it. Always use fuel from a separate container for this.

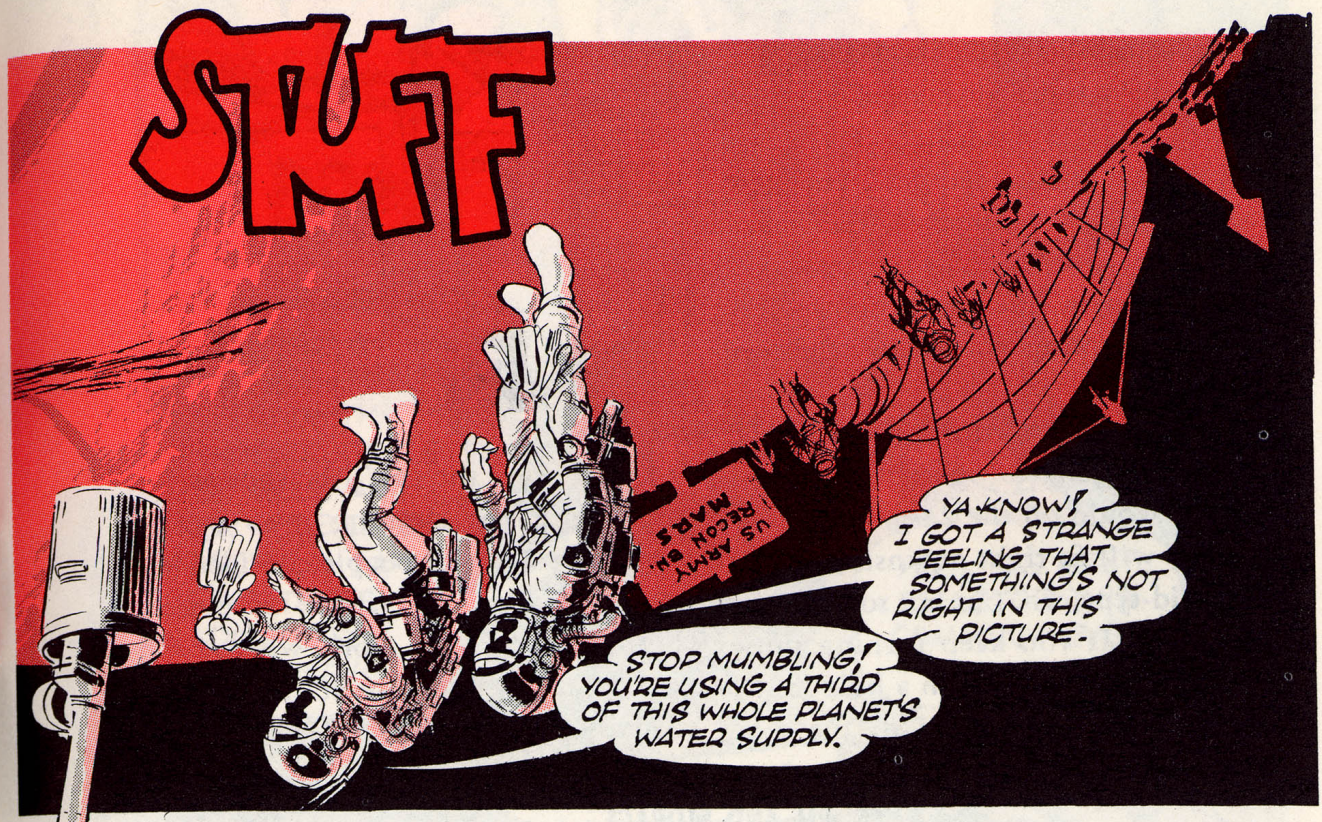
CAN IT OR...

The new standard heaters have two thumbscrews on each hanger and give good service. But if you have one of the old models with one screw, chances are you'll have trouble with the larger 32-gal corrugated cans they're issuing these days (the old ones were 24 gal). The combustion chamber'll pop up and off.

There's a quick temporary fix and a permanent cure for this. Use the one that fits the situation best.



For the quick fix, try this: Use a size 303 or 2½ can to get a tighter fit. Put a flattened can like a filler between the locking screw and the can, or put a whole can between the side of the combustion doughnut and the side of the can, on the bottom just opposite the heater flue.



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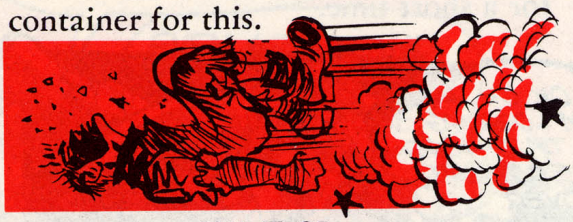

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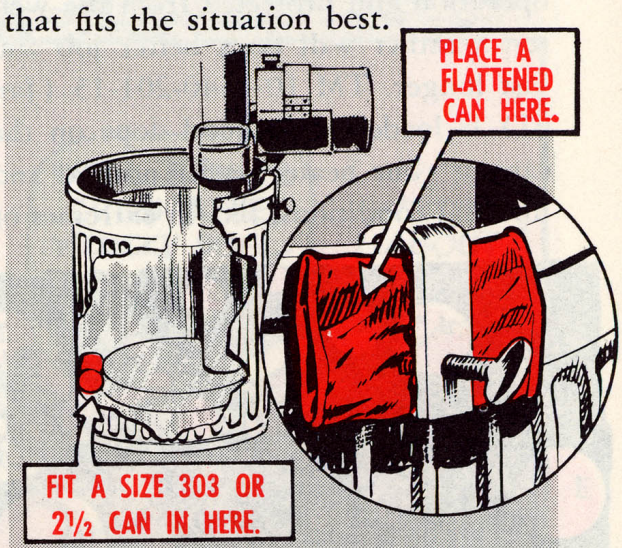

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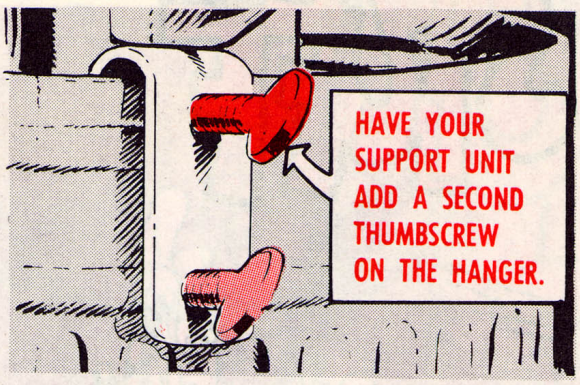
But, remember, first chance you get, have your support guys apply the permanent cure by adding one more thumbscrew to the hanger. The new screw should be seated on the heavy ½-in metal rim. This way the can won't get cut into by the new thumbscrew and the mounting will be more secure and rigid.



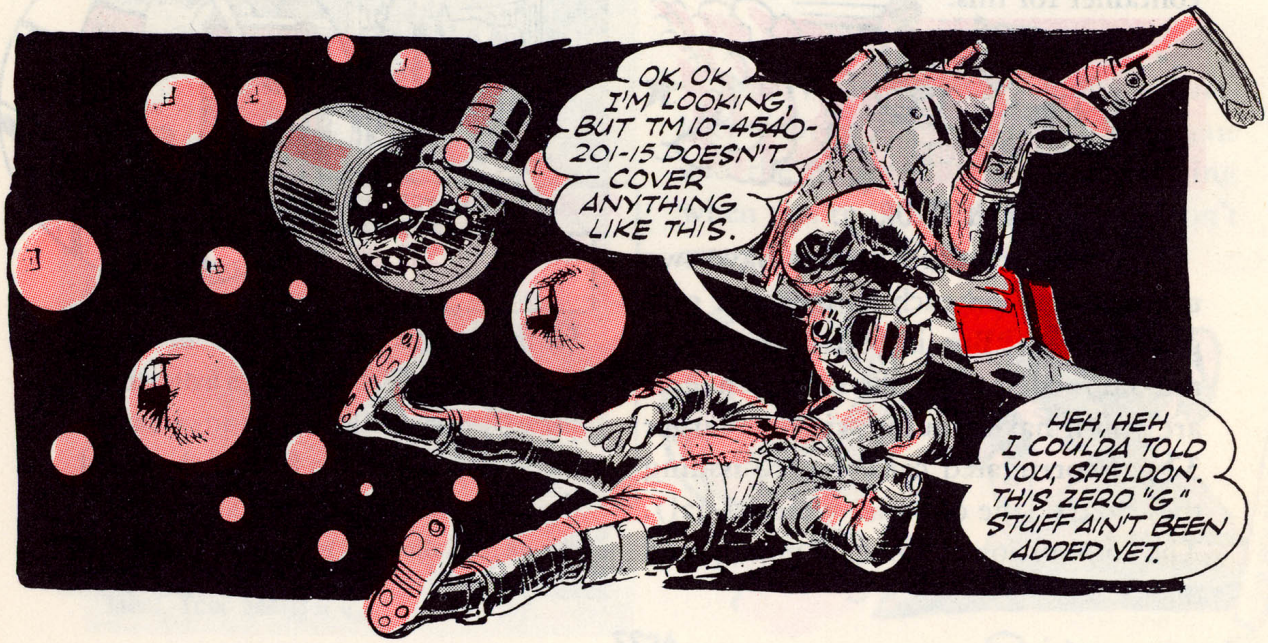
But whatever you do, don't make the mistake of trying to tighten the screws like you would on the 24-gal can. The chamber will fit tight against the sides of the old-type can, but not so with the 32-gal size. If you keep turning those screws you'll end up with a hole in the can, or at least damage to the zinc coating.

Either way, the can'll be shot as far as using it for cleaning mess equipment. The Medical people consider it a health hazard when the zinc gets chipped off. What's more, when a can gets damaged like this, it can't be recoated—and those cans are in short supply in some areas.

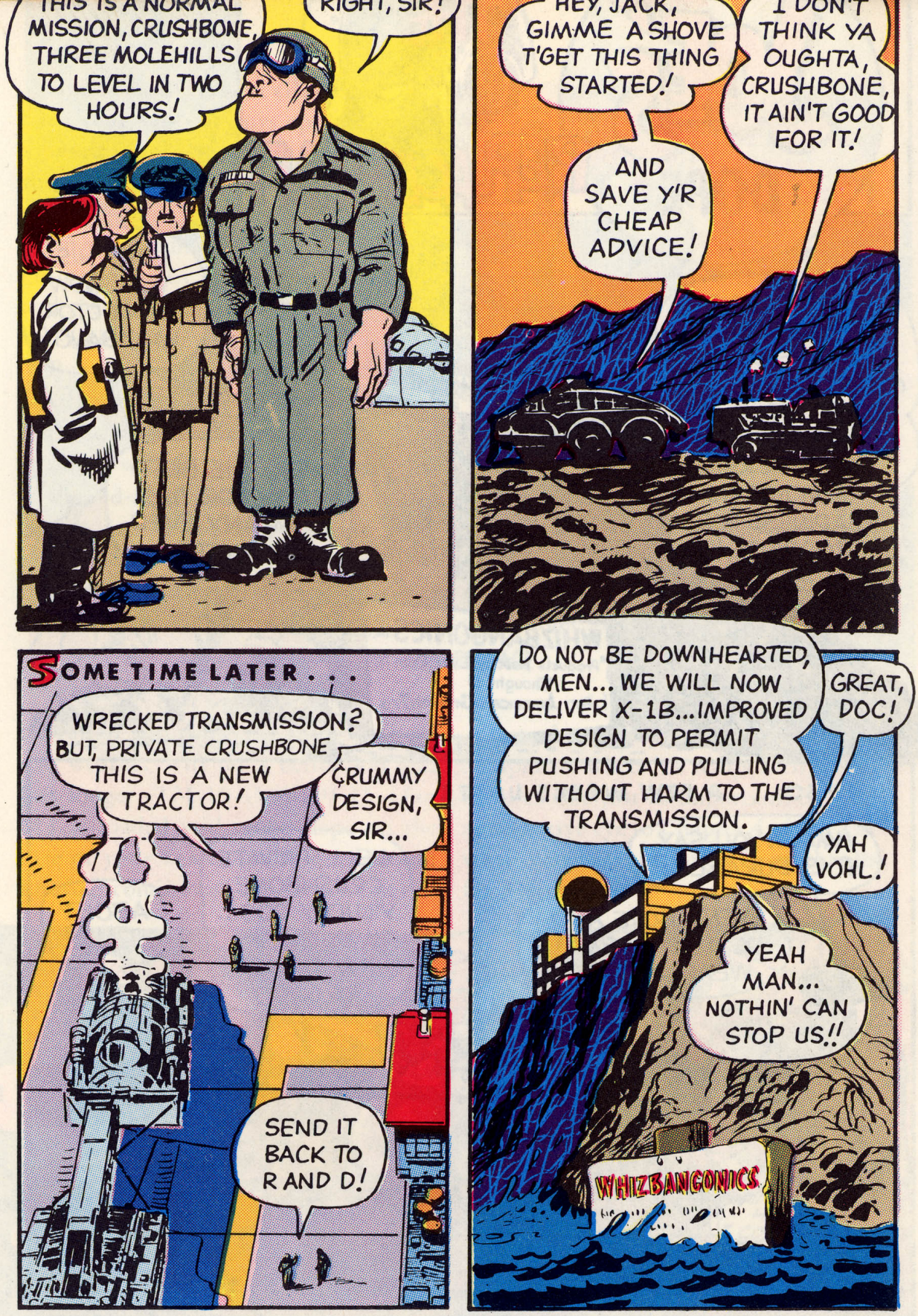
PM AND STORAGE

A heater that's cleaned after every operation and protected from the wettest weather will do a better job and last longer. TM 10-4540-201-15 (Jan 61) is loaded with good dope on the care of your heater under normal and unusual conditions, like in extremes of heat and cold and heavy rain.

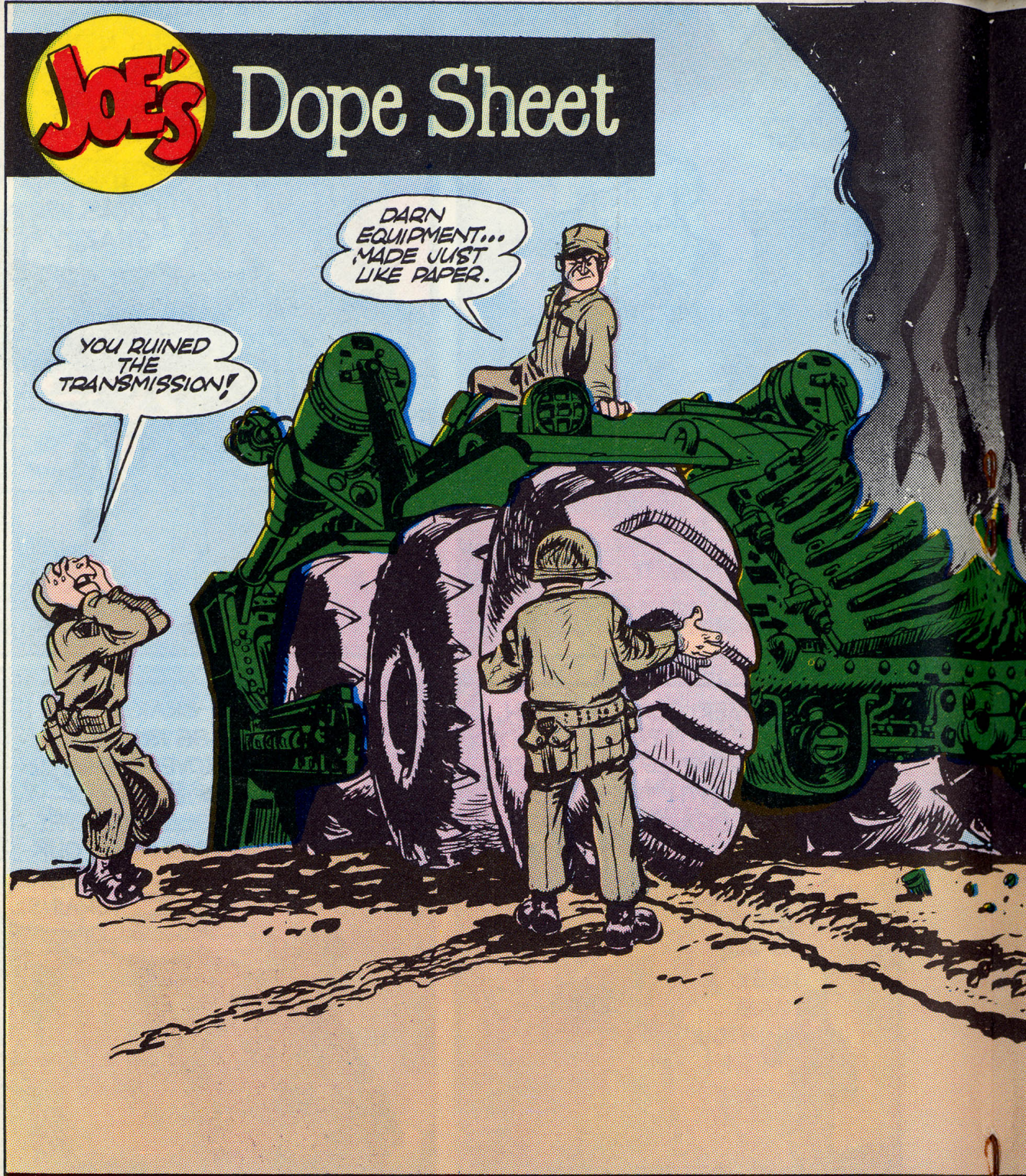
But the treatment you give your equipment when it's temporarily sidelined can be just as important. So lend an attentive eye to Chapter 4 of the TM when you have to put it in mothballs for a short time.



JOE'S DOPE
THE REPLACEMENT
GENTLEMEN, I HAVE GREAT NEWS! OUR TESTS ON THE GIANT INDESTRUCTIBLE SUPER MOLE AND GOPHER HOLE LEVEL TRACTOR X-1A INDICATE ITS READINESS FOR TROOP USE!!
BOY! THIS WILL WOW 'EM, DOCTOR WHIZBANG!
YEP... THE BEST TRACTOR THIS COMPANY EVER INVENTED!
WHIZBANGONICS INC.
"Products Nobody Ever Even Thought of For America's Growth"
AND SO. . . A FEW WEEKS LATER
HMM... YOU SAY IT IS DURABLE?
EVEN ABOVE AND BEYOND NORMAL WEAR AND USE!
WELL, PRIVATE CRUSHBONE, Y'LUCKY DOG... YA DREW A NEW DOZER AT LAST!
ABOUT TIME!


THIS IS A NORMAL MISSION, CRUSHBONE, THREE MOLEHILLS TO LEVEL IN TWO HOURS!
RIGHT, SIR!
HEY, JACK, GIMME A SHOVE T'GET THIS THING STARTED!
I DON'T THINK YA OUGHTA, CRUSHBONE, IT AIN'T GOOD FOR IT!
AND SAVE Y'R CHEAP ADVICE!
SOME TIME LATER . . .
WRECKED TRANSMISSION? BUT, PRIVATE CRUSHBONE THIS IS A NEW TRACTOR!
GRUMMY DESIGN, SIR...
SEND IT BACK TO R AND D!
DO NOT BE DOWNHEARTED, MEN... WE WILL NOW DELIVER X-1B...IMPROVED DESIGN TO PERMIT PUSHING AND PULLING WITHOUT HARM TO THE TRANSMISSION.
GREAT, DOC!
YAH VOHL!
YEAH MAN... NOTHIN' CAN STOP US!!
WHIZBANGONICS

AUG
AND SO... LATER
SIR, IT'S THAT WIZBANG OUTFIT... THEY'RE DELIVERING AN IMPROVED X-1!
FINE...THROW IT INTO THE POOL...AND ASSIGN IT!
OKAY, PRIVATE HAMMERLOCK— YOU OPERATE THIS NEW DOZER... Y'GOTTA FILL SOME GOPHER HOLES OUT ON RANGE THREE TODAY!
HMM, LOOKS VERY SNAZZY!
HEY, HAMMERLOCK, THIS IS THE FIFTEENTH TIME YOU STARTED TO MOVE HER WITH THE PARKING BRAKE SET.
AAH, THEY SURE DON'T DESIGN MILITARY VEHICLES THE WAY THEY USTA!
A PARKING BRAKE THAT WILL NOT BE RUINED EVEN THO' MOVED WHEN ENGAGED??? GAD!!
YOU CAN DO IT, SIR...
YES, OUR COMBINED BRAINS...
WHIZBANGONICS
FOR RENT

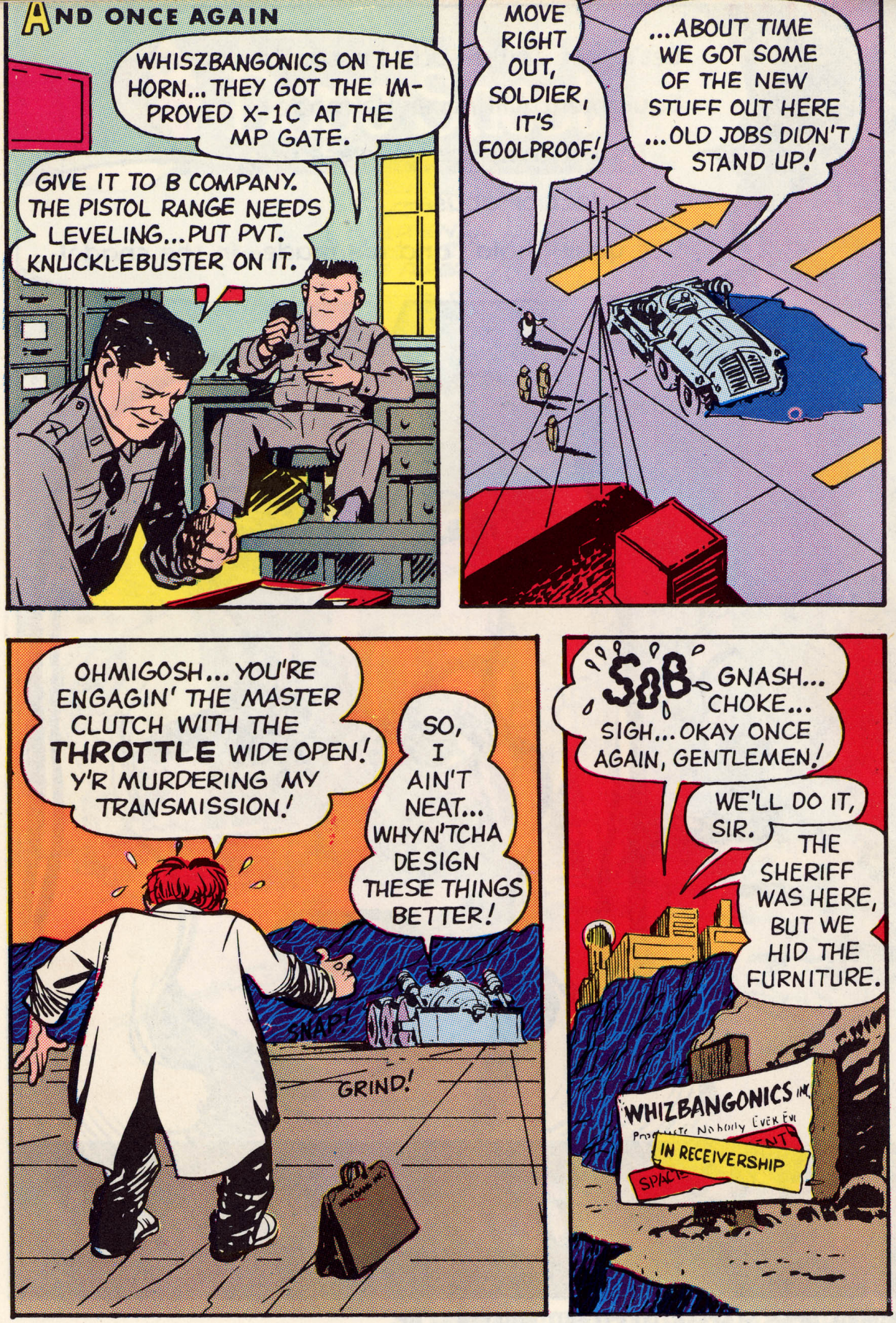


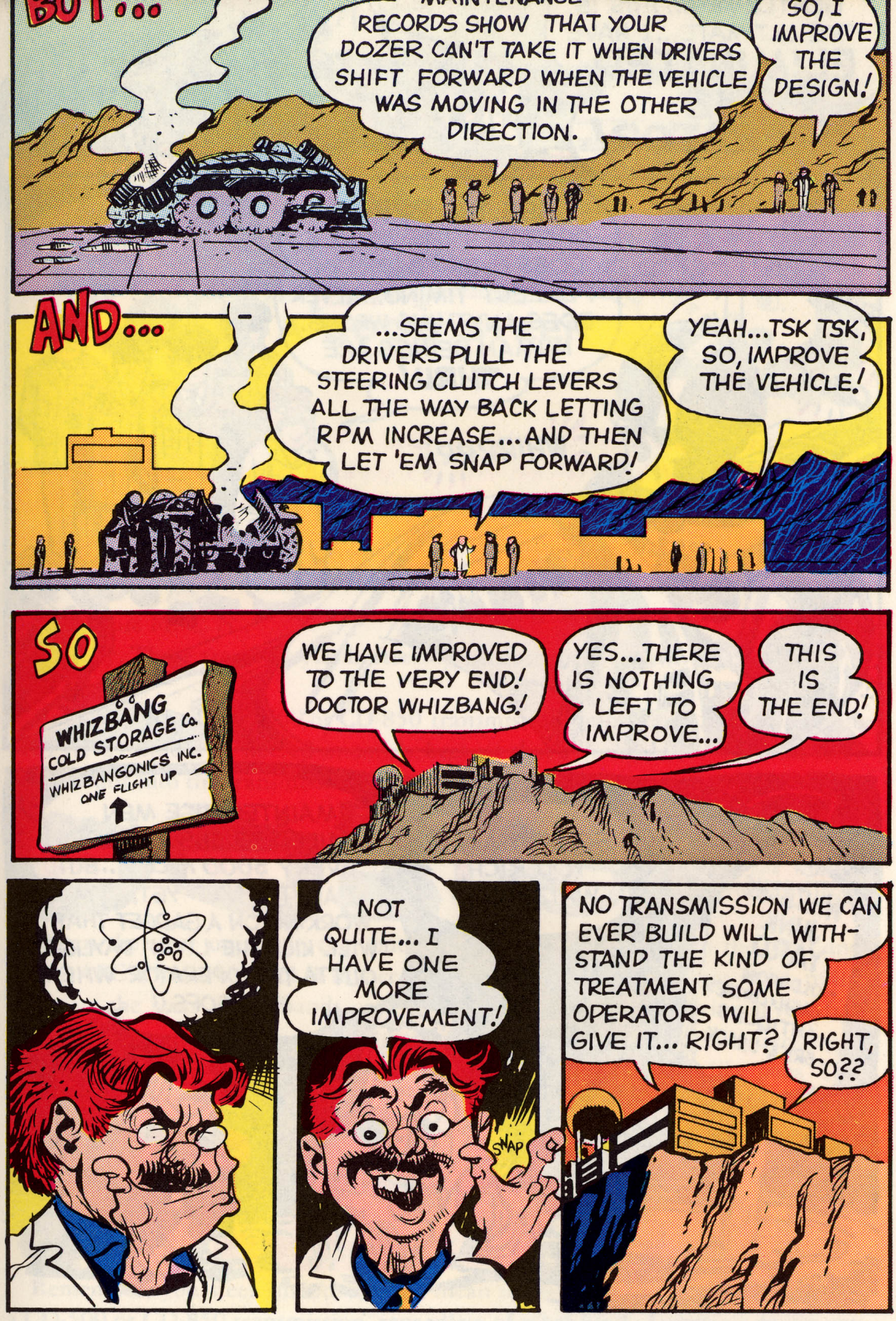
WE HAVE THE WORLD'S BEST EQU

IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BULL

IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BULLETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.

ULLETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.


AND ONCE AGAIN
WHISZBANGONICS ON THE HORN... THEY GOT THE IMPROVED X-1C AT THE MP GATE.
GIVE IT TO B COMPANY. THE PISTOL RANGE NEEDS LEVELING... PUT PVT. KNUCKLEBUSTER ON IT.
MOVE RIGHT OUT, SOLDIER, IT'S FOOLPROOF!
...ABOUT TIME WE GOT SOME OF THE NEW STUFF OUT HERE ...OLD JOBS DIDN'T STAND UP!
OHMIGOSH... YOU'RE ENGAGIN' THE MASTER CLUTCH WITH THE THROTTLE WIDE OPEN! Y'R MURDERING MY TRANSMISSION!
SO, I AIN'T NEAT... WHYN'TCHA DESIGN THESE THINGS BETTER!
SNAP!
GRIND!
SOB... GNASH... CHOKE... SIGH... OKAY ONCE AGAIN, GENTLEMEN!
WE'LL DO IT, SIR.
THE SHERIFF WAS HERE, BUT WE HID THE FURNITURE.
WHIZBANGONICS INC.
IN RECEIVERSHIP


BUT...
RECORDS SHOW THAT YOUR DOZER CAN'T TAKE IT WHEN DRIVERS SHIFT FORWARD WHEN THE VEHICLE WAS MOVING IN THE OTHER DIRECTION.
SO, I IMPROVE THE DESIGN!
AND...
...SEEMS THE DRIVERS PULL THE STEERING CLUTCH LEVERS ALL THE WAY BACK LETTING RPM INCREASE... AND THEN LET 'EM SNAP FORWARD!
YEAH...TSK TSK, SO, IMPROVE THE VEHICLE!
SO
WHIZBANG COLD STORAGE Co.
WHIZBANGONICS INC.
ONE FLIGHT UP
WE HAVE IMPROVED TO THE VERY END! DOCTOR WHIZBANG!
YES...THERE IS NOTHING LEFT TO IMPROVE...
THIS IS THE END!
NOT QUITE... I HAVE ONE MORE IMPROVEMENT!
SNAP
NO TRANSMISSION WE CAN EVER BUILD WILL WITHSTAND THE KIND OF TREATMENT SOME OPERATORS WILL GIVE IT... RIGHT?
RIGHT, SO??

GENTLEMEN... THIS IS THE ULTIMATE... I HAVE ELIMINATED THE OPERATOR!
SEE, THE ROBOT OPERATES THE VEHICLE, DOES EVERYTHING IN PERFECT TIMING... NEVER DOES ANYTHING WRONG. HUMAN BEINGS ARE THRU!
BUZZ
ZAP
CLICK
WHIRRRR
WHIZBANG JUNK YARD
• OLD IRON
• CASH • CLOTHES
• ANTIQUES
• BRICA-BRACK
SO, WHY AIN'T YOU RICH, WHIZBANG?
MAINTENANCE MEN FAILED TO LUBE ROBOT EVERY 5000 MILES... BUT, I AIN'T LICKED YET... I'M WORKING ON A GADGET THAT WILL KICK THE LIVIN' DAYLIGHTS OUTTA THE OPERATOR WHEN HE GOOFS!!

QUESTION AND ANSWER DEPARTMENT

A GOOD STEER

Dear Half-Mast,

Do you jerk or don't you?

Some of the TM's say tracked vehicles should be steered smoothly instead of in a series of jerks. On 'tuther hand the TM's for the M59 and M113 APC tracked vehicles say you should steer with several quick, hard, pulls instead of one long pull.

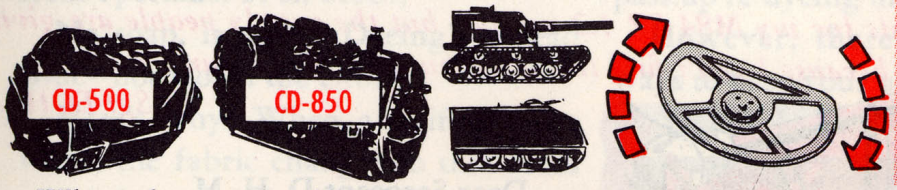
Who's wrong?

Pvt M. C. N.

Dear Private M. C. N.,

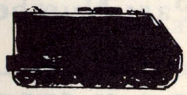
Nobody. There are two styles in steering because there are two types of steering controls.

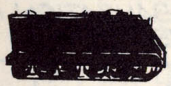
Vehicles with the CD-500 or CD-850 transmission (most tanks, SPH's and the M75 APC) should be steered smoothly because that's the best deal when the steer unit is built into the transmission.



STEER WITH A SMOOTH STEADY MOTION WHETHER YOU HAVE A BAR WHEEL OR LEVERS TO STEER WITH.

When the steer unit is in the controlled differential, as it is in the M59 and M113 APC's, your best bet is to steer in a series of short pulls—not jerks, pulls. This lets the steer brake bands cool off when you push the steering levers full forward between pulls. You don't steer any kind of tracked vehicle by jerking it because that puts too much strain on the engine and power train like para 18e of TM 21-306 (Aug 61) says.


M59


M113

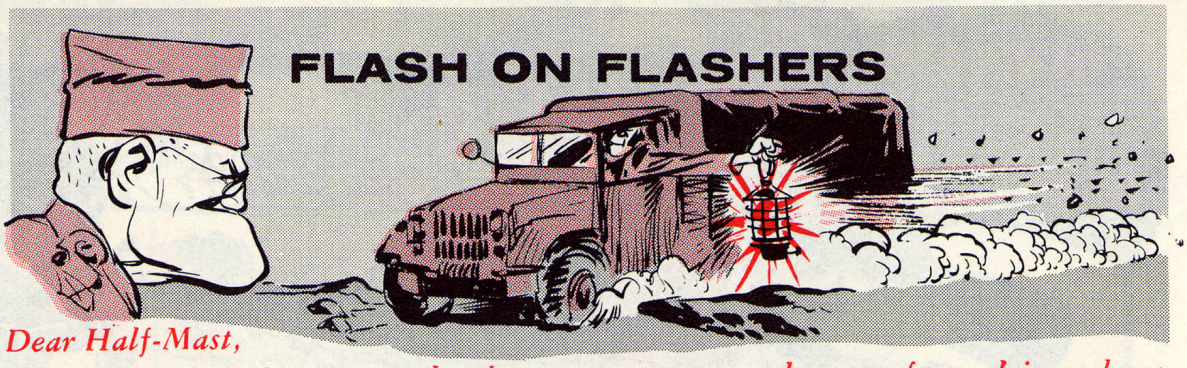
WITH A CONTROLLED DIFFERENTIAL, STEER IN A SERIES OF SHORT, QUICK PULLS, AS WITH M59 AND M113

PUSH LEVER FULL FORWARD BETWEEN PULLS

Remember, you steer smooth (and I mean smoo-oo-oo-th) if your vehicle has a CD-500 or CD-850 transmission, regardless of what kind of steering device you are holding—a wheel, two steering levers, a single steer lever, or whatever.

Half-Mast

FLASH ON FLASHERS



Dear Half-Mast,

Our battalion has 64 trucks that carry troops, and some of our drivers have stubby left arms. That makes a turn in traffic a risky deal. And some states say it's illegal to be without turn signal lights.

How can we get these directional signals for our trucks? *Lt H. R. B.*

Dear Lieutenant H. R. B.,

You'll find the answer in SB 9-203 (30 Mar 62), Sir. It has details on how to get and install directional signals on military transport vehicles.

But, first, you need approval from the major commander for your area—or from the tech service that has operational control of the vehicles.

The vehicles have to be in regular use on public highways. And you get the signals by local purchase like AR 715-30 says. They're not stocked for issue. So, dip an eye into the SB first of all. Once they're installed, you'll need a quick disconnect for use when fording.

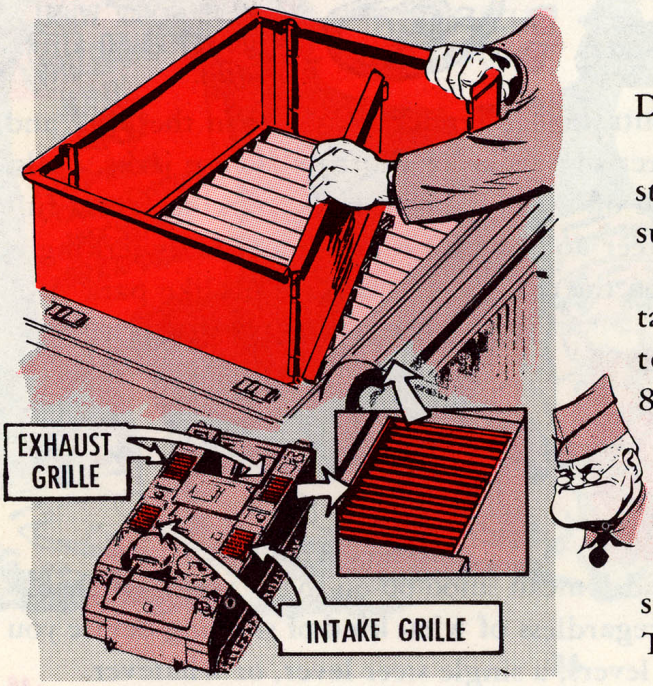
Half-Mast

M84 SNORKELS

Dear Half-Mast,

I need snorkels for my M84 SP 4.2 mortar, but the supply people are giving me a hard time because I can't find the stock number. What can I do?

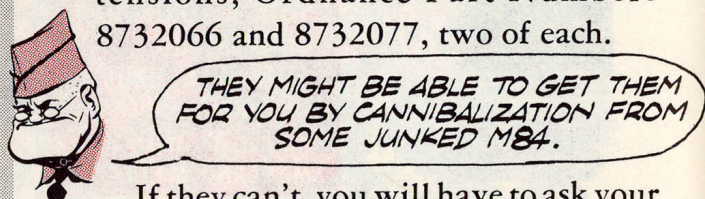
MSgt D. H. M.



Dear Sergeant D. H. M.,

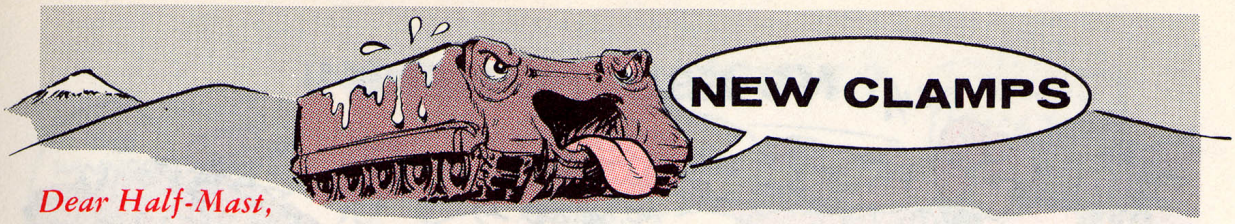
'Taint that simple, Sarge. There is no stock number because the snorkels are supposed to last the life of the vehicle.

However, you can ask supply for Intake and Exhaust Grille Opening Extensions, Ordnance Part Numbers 8732066 and 8732077, two of each.



If they can't, you will have to ask your support unit to fabricate them for you. There are none in the supply system.

Half-Mast



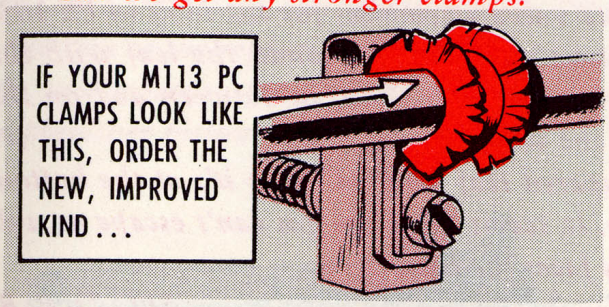
Dear Half-Mast,

Now you see 'em and now you don't . . . I mean the Clamp, Loop: S, fuel resistant cushion, that the choke and throttle cables run through. The rubber falls apart in no time.

These are the clamps listed on page 132 of TM 9-2300-224-20P (Aug 60) under FSN 5340-200-8027.

Can we get any stronger clamps?

Sgt M. M.



Dear Sergeant M. M.,

Yes . . . the clamps you mention are now being replaced, both in production and in supply, by improved clamps, loop, FSN 5340-598-8062. They're listed in TM 9-2300-224-20P (Nov 61) Page 121, Item 8.

Half-Mast

DON'T DYE YET!

Dear Half-Mast,

Is there anything we can get to re-dye our fatigue uniforms back to their original olive green or olive drab? The clothes turn white after washing.

SP4 F. R. McG

Dear Specialist F. R. McG.,

No soap, it seems. Dyeing's a dead issue—not worth the effort.

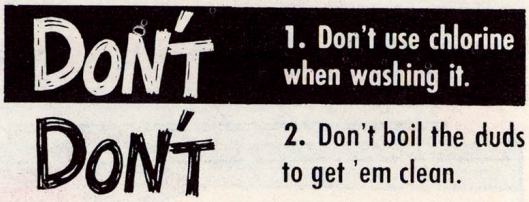
Here's why: When a uniform gets worn, the fabric changes so that areas which have faded a lot will dye different from areas which have not faded so much.

There're a lot of technical reasons behind this, but let's just say that even if there was a dye that'd do the trick, it'd have to be applied several times to keep the uniform uniformly colored.

And there's no olive green dye that can stand the gaff of a lot of laundering.

So, till they do come up with a dye that'll bring the faded areas up to the same color as the unfaded areas—and keeps 'em that way—your best bet's to pass up re-dyeing uniforms.

However, there're a couple good ways to keep your uniform from fading too fast in the first place:



A look-see in FM 21-15 (Aug 61) on Care and Use of Individual Clothing and Equipment will clue you a lot on this.

Incidentally, this same rule goes for all other personal equipment too—stuff like your duffel bag, combat pack, ammo belt, first aid case, covers for your canteen, entrenching tool, etc. Don't dye 'em!

Half-Mast

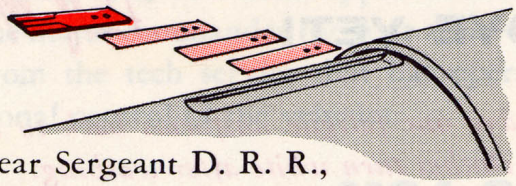
NO ESCAPE HERE

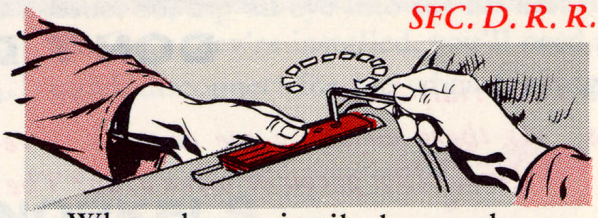
Dear Half-Mast,

We read what you had on the gate valve assemblies for the M52 in PS 103, page 9 and had the howitzers in our unit checked. We found the leaf with the tapered section all over the place. It was on the top, in between and on the bottom. So, naturally we changed it the way PS says.

But we are wondering why the tapered leaf isn't set up so it's at the bottom with the tapered part facing the hole. It seems to us the gas can't escape as well when the flat side of one of the leaves faces the hole.

SFC. D. R. R.



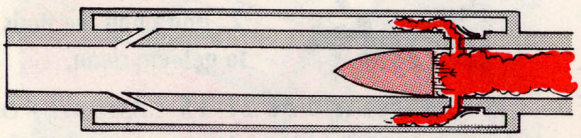


Dear Sergeant D. R. R.,

You're so right. It can't.

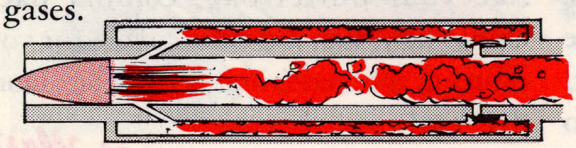
But, if you had the tapered part facing the hole, you'd foul up the whole idea of the gate assembly.

The deal behind the assembly is to allow gas, under pressure, to enter the evacuator from the gun bore through the rear gas ports.

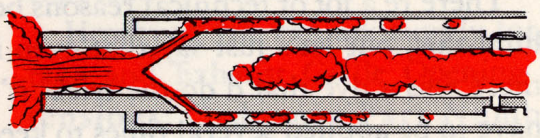


But remember one thing . . . the gate assembly is strictly a one-way street.

After the leaves open under pressure to let gases from the bore pass into the evacuator, they snap shut and trap the gases.



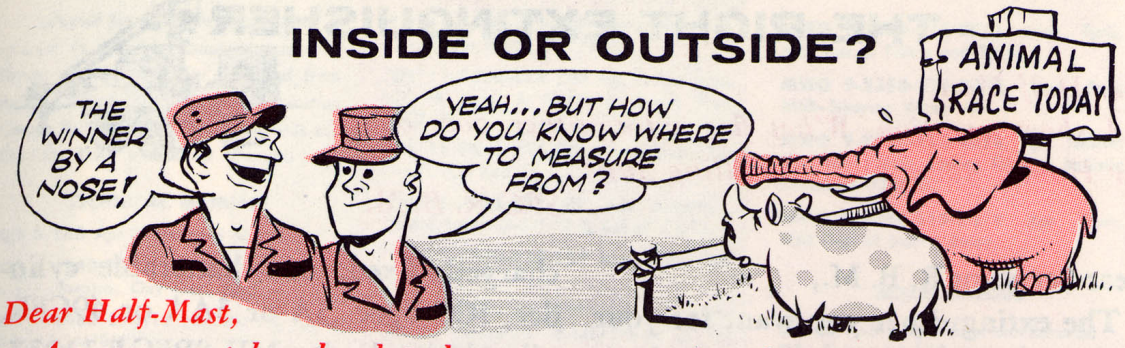
When the projectile leaves the gun tube, the tube pressure drops to zero real fast. The gases trapped in the evacuator under pressure then blow back into the tube thru the forward venturi holes; this creates a suction from the breech toward the muzzle, clearing out the gases.



If the leaves in your weapon happen to get assembled wrong, they won't work right as one-way valves. And your evacuator won't evacuate like it's supposed to.

Half-Mast

INSIDE OR OUTSIDE?

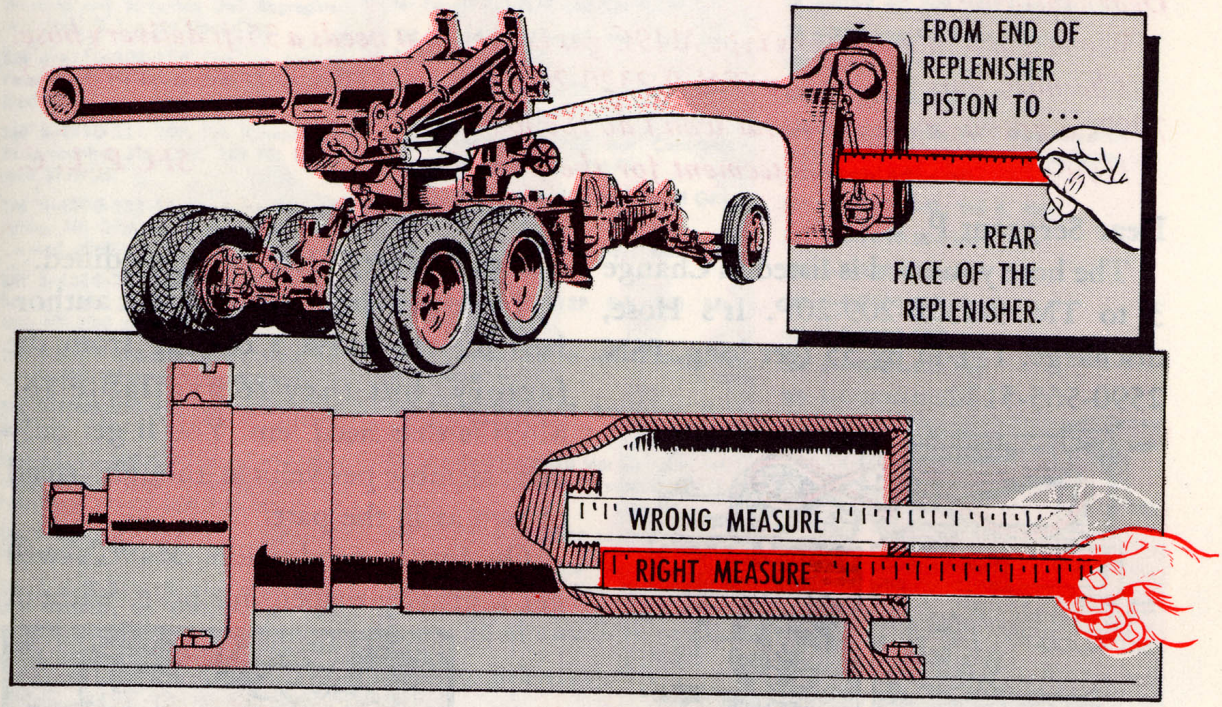


Dear Half-Mast,

An argument has developed among our section chiefs on how to measure the amount of oil in the replenisher assembly of our 8-in howitzers.

TM 9-3004 says you measure from "the end of the replenisher piston to the rear face of the replenisher"—but the piston has a recessed end. The question is, do you measure from inside the recess or outside the recess on the end of the replenisher piston rod?

Lt. J. K.



Dear Lieutenant J. K.,

The "outsiders" win this argument face down.

Because you measure the amount of oil from the end of the replenisher piston—not from the bottom of the recessed slot in the end of the piston.

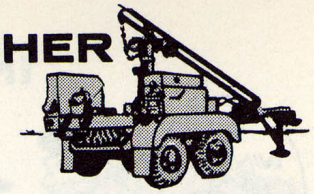
Your best bet—when you're using the narrow metal ruler that comes with the oil pump chest—is to rest the ruler on the lower surface of the piston guide assembly and push it in until it hits the end of the piston.

This way the ruler can't tip up into the recessed slot and foul you up.

Of course, like it says in TM 9-3004, dated Jun 53, the allowable range in the replenisher is from 7⅞ to 4 inches. But the normal you're looking for is 5¾ inches. Right?

Half-Mast

THE RIGHT EXTINGUISHER



Dear Half-Mast,

A short question. What fire extinguisher goes on our Honest John M405 handling unit?

SFC R. B. M.

Dear Sergeant R. B. M.,

The extinguisher you want for your M405 (also the M405A1) comes from the Engineers under FSN 4210-202-6465. Its nomenclature reads: Extinguisher, Fire, Carbon Dioxide: standard charged, fixed, non-shatterable cylinder, ICC Spec. 3A or 3AA or 49CFR, olive drab cylinder, MIL SPEC E-11237, 1-inch flood valve w/safety release, 10 pound, Eng PD, 10 Aug 59.

Half-Mast

M49C GETS THIS HOSE

Dear Half-Mast,

We've got a side-delivery type M49C gas tanker that needs a 35-ft delivery hose.

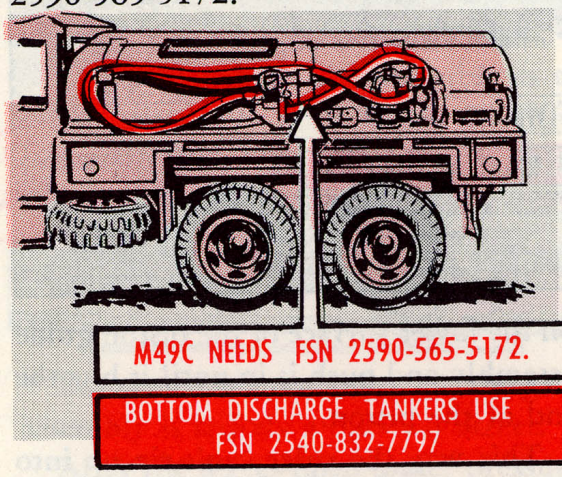
The only hose we find in TM 9-2320-209-20P (8 Apr 59) is FSN 2540-832-7797, a gravity-type hose that won't do the job.

How can we get a replacement for the 35-ft hose?

SFC P. L. C.

Dear Sergeant P. L. C.,

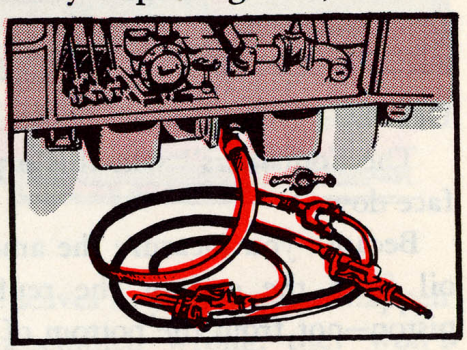
The hose you need is listed in Change 3 to TM 9-2320-209-20P. It's Hose, discharge, 1½-in by 35 feet long, FSN 2590-565-5172.



That Dispenser, gravity hose assy, FSN 2540-832-7797, that shows up on page 139 of TM 9-2320-209-20P and in Change 5 (11 Dec 59) to TM 9-8022 is for the M49 gas tanker and for M49C gas tankers that still have a bottom discharge delivery after being modified.

These gravity hoses were not authorized for the M49C's coming from the factory, but they're available for M49C's that need 'em. You'll get only one assembly per vehicle, though, 'stead of two as in the past.

On future production, M49C's will get a gravity dispensing hose, without nozzles, as OEM equipment. It'll be only for pickup (suction) and gravity discharge into storage tanks.



Half-Mast

A selected list of recent publications of interest to Organizational Maintenance Personnel. This is a list compiled from recent Adjutant General's Distribution Center Bulletins. For complete details see DA Pam 310-4 with latest changes.

TECHNICAL MANUALS

TM 3-260 Apr Radioactive Mat Disp.

TM 3-4240-233-15, —25P Apr Breathing Apparatus, Oxy Gen, M13.

TM 3-6665-212-12 Mar Det Kit, Chem AG, ABC-M18A1.

TM 5-335 Mar Drainage Structures, Subgrades, and Base Courses.

TM 5-349 Feb Arctic Cons.

TM 5-2805-203-14, -24P Apr Eng, Gas: 6 HP; Mil Stand Mod 4A032-1.

TM 5-3805-225-20P Mar Loader, Scoop Type: ¾ Cu Yd: Clark Mod 55A-M.

TM 5-3820-209-20P Mar Auger; Earth: Skid Mtd: Highway Trailer Mod HDM-S.

TM 5-3820-210-20P/1, -20P/2 Mar Washing and Screening Unit Aggregate: Whl Mtd, 75 Ton per Hour Cap.

TM 5-4110-202-25P Feb Ice Making Plant, Block: Field Assembled 15 Ton Frick Mod 7x7.

TM 5-4310-239-20P Feb Compressor, Reciprocating: 315 CFM, 100 PSI Davey Mod 315WDS.

TM 5-4320-222-15 Apr Pump, Reciprocating, 100 GPM Rice Pump and Machine Co Mod 4D-327.

TM 5-4610-202-20P Mar Water Purification Unit, Trailer Mtd, MET-PRO Inc Mod 600-2500, 600A-2500.

TM 5-6675-210-25P Mar Theodolite, Directional; Wild Heerbrugg Mod T4A.

TM 9-1005-223-20P Mar 7.62MM, Rifle M14.

TM 9-1095-201-25P Mar Gr Sig Projector M1A1, Hand Pyro Proj M9, and Pyro Pistol AN-M8 with Pyro M1.

TM 9-2590-206-25P Mar Bulldozer, Earth Moving, Tank Mounting M8A1.

TM 9-4940-221-15P Apr Paint Spray Gun (Devilbiss No 58-FX, No 45-E, No 58-E)

TM 9-6920-220-15P Apr Target Detection Aiming Device.

TM 10-1670-204-25 Apr Parachute, Cargo Extraction, 22 Foot Nylon Canopy.

TM 10-3930-201-20P Feb Hyster Forklift, MHE 139.

TM 11-5810-219-15P Mar Automatic Shunt Device TSEC/HWX-1 (FOUO).

TM 11-5815-244-20P Mar Teletypewriter Sets AN/FGC-25 & AN/FGC-25X.

TM 11-5815-281-20P Mar Distributor-Transmitter Set, Teletypewriter AN/GGC-9.

TM 11-5820-261-15P Mar Antenna AS-612/U.

TM 11-5820-418-20P Mar Radio Repeater Set AN/FRC-34.

TM 11-5820-469-10 Apr Radio Terminal Set AN/TRC-80.

TM 11-5820-472-20P Mar Transmitting Set, Radio Set-1KJ(AN-FRT-53).

TM 11-5820-478-20P Apr Exciter Units 0-5/FR series & Oscillator Radio Freq 0-5D/FR.

TM 11-5830-216-20P Mar Intercom Set AN/U1C-1 and -1X.

TM 11-5830-238-20P Apr Amplifier, Audio Freq AM-871/U & AM-871/A/U.

TM 11-5840-220-20P Mar Radar Set AN/MPQ-29.

TM 11-5840-231-20P Mar Azimuth-Range Indicators 1P-141/TPS-1D & 1P-141A/TPS-1D.

TM 11-5840-245-20P Mar Receiver-Transmitter, Radar RT-212/TPS-1 & RT-212A/TPS-1D.

TM 11-5840-260-20P Mar Antenna Group OA-1227/TPS.

TM 11-5915-200-20P Mar Network, TA-31/U.

TM 11-5940-201-12P Mar Terminal Box J-1014/VRC.

TM 11-6110-205-25P Mar Power Transfer Panels CN-22/F and CN-22A/F.

TM 11-6625-213-20P Mar Test Sets, TS-538/U, A, B & C.

TM 11-6625-283-12P Mar Signal Generators TS-452B/U & TS-452C/U.

TM 11-6625-402-20P Apr Calibrator Set, Pulse Power AN/UPM-73.

TM 11-6625-406-20P Mar Signal Generator SG-336/U.

TM 11-6625-435-12 Apr Generator Pulse SG-366/U.

TM 11-6625-458-12P Feb Test Set, Radar AN/GPM-46.

TM 11-6660-228-10 Mar Radiosonde AN/AMT-4C & -4D.

TM 11-6740-241-20 Apr Editor, Motion Picture Film ES-21(2).

TM 11-7440-200-20 Mar Computer Set, Digital Data, General Purpose AN/MYK-1(V).

TM 55-1930-203-20P Mar BARC.

TM 55-2210-215-20P Apr Loco Dsl Elec, 56-1/2 In, 80 Ton, 0-4-4-0 Whl, Cummins Eng Mod L1600, 500 HP, GE Co Class B-B-160/1604GHM833, Domestic.

LUBRICATION ORDERS

LO 5-3695-204-15 Apr Saw, Chain: L-M Mfg Co, Mod Strunk G4.

LO 5-6115-327-15 Apr Gen Set, Gas Eng: 3 KW, DC, 28V, Hollingsworth Mod JHGV3A.

LO 9-2350-208-10 Feb Tank, Combat, 90-MM Gun, M48A2.

LO 55-2220-210-12 Mar Railway Car, Guard.

MODIFIED WORK ORDERS

MWO 9-2320-212-20/1 Mar Truck, M42: Removal of Command Conversion Parts.

MWO 9-2350-208-20/5 Apr Tank, 90-MM Gun, M48A2 and M48A2C Inst of Shell Defl Screen.

MWO 9-2350-215-20/1 May Tank, M60 Inst of Fillers and Strips.

MWO 9-2350-215-20/2 Mar Tank M60—Steering Wheel Mt.

MWO 9-2350-215-20/8 Apr 105MM Gun Tank, M60: Adding Plate to Ballistic Computer M13A1D.

MWO 9-2350-215-20/9 Apr Tank, M60 Repl of Starter Relay.

MISCELLANEOUS

DA Cir 750-8 Apr Forms and Records.

DA Form 14-110 Mar Organization (Inst) Property Record.

DA Form 14-110-1 Mar Installation Property Record.

DA Form 1546 Mar Request for Issue or Turn-in.

DA Form 2064 Mar Document Register for Supply Actions.

DA Form 2527 Mar Record of Demands.

DA Pam 310-22, C2 Apr TC Index.

SB 3-30-2 Apr Prot Mask Can: Ser Lists.

SB 9-203 Mar M1 Aiming Circle.

SB 55-34 Mar TC Critical Items.

SM 5-1-C8000-FL May.

SM 5-1-C8000-SL, Vol 1 May Industrial Supplies, FSC Group 80, Brushes, Paints, Sealers, and Adhesives.

SM 5-3-C8000-SL, Vol 6, May.

SM 5-4-2090-S04 Mar.

SM 5-4-2090-S06 Mar.

SM 5-4-2090-S07 Mar.

SM 5-4-3220-SO2 Mar.

SM 5-4-3610-S20 Mar.

SM 5-4-6630-S03 Mar.

SM 5-4-6675-SO3 Mar.

SM 5-4-6675-S21 Mar.

SM 5-4-6675-S57 Mar.

SM 5-4-7610-S10 Mar.

SM 55-4-4940-S02 Apr Tool Set, LARC No. 2.

SM 55-4-5180-A01 Mar Tool Kit, A/C Mechanic's.

SM SIG 7&8 AN/GRC-6, C1, Mar.

SM SIG 7&8 AN/GRC-8, C1 Mar.

SM SIG 7&8 AN/VRC-8, C2 Mar.

SM SIG 7&8 AN/VRC-9, C2 Mar.

SM SIG 7&8 AN/VRC-10, C3 Mar.

SM SIG 7&8 OA-1404/FSG-1, C1 Mar.

TA 55-32 Apr Trans Terminals.

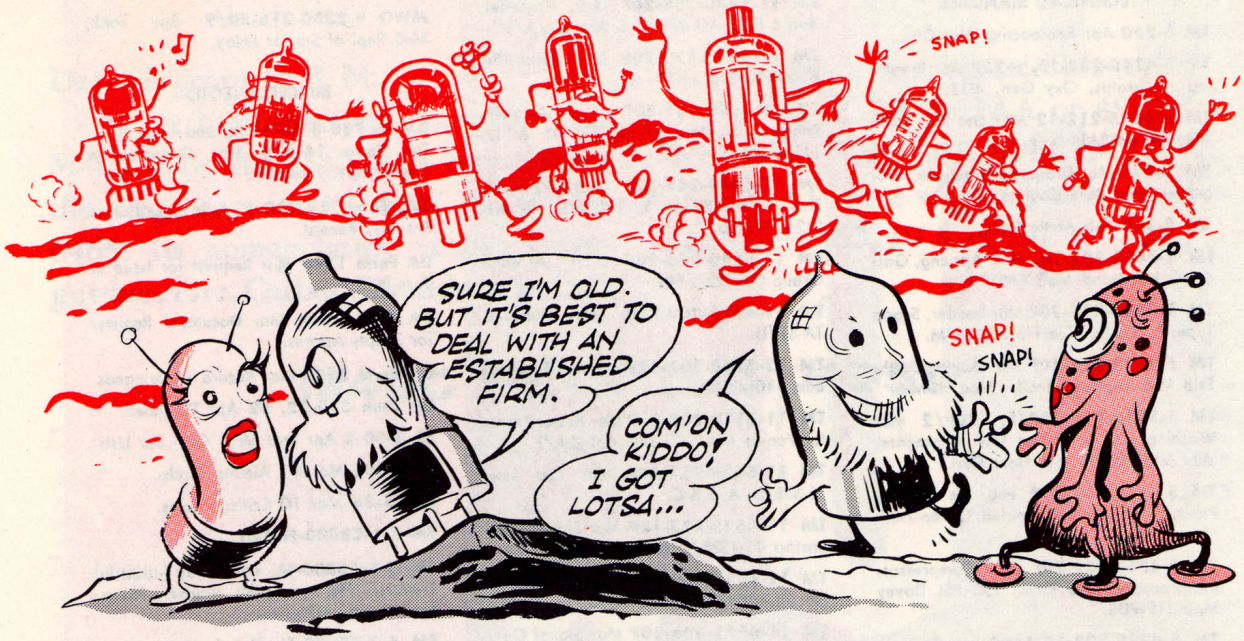
TB 9-2320-211-20/3 Apr Truck: 5-Ton, (G-744 Series), M39, M40, M61, Insp of Strg Knuckle Arms to Prev Stud Dage and Loss of Strg.

TB 55-20 Mar Transportability Guidance, Semi, Van, 6 Ton, M119.

TB 55-2200-204-20/1 Apr Loco, Dsl-Elec, 56-1/2 Gage, 100 Ton, Electromotive Mod SW-8; 80 Ton, Cummins Engine NHBIS-600, Brake Shoe Alinement Rods.

LIKE WITH WINE, WOMEN AND SONG...

A LITTLE AGE HELPS



It happens every cottonpickin' time!

Just about the time you think you've got a good, general everyday rule of thumb to go by, along comes an exception to shake it all up.

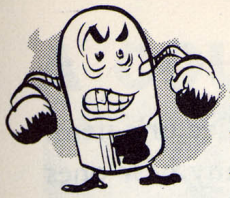
Take those electron tubes used in your communication equipment, for example. You'd think the longer they were in use the more chance they'd have of burning out or going bad. So you sorta figure that after they've given you a certain number of hours of good and faithful service, they ought to be plucked and retired before they suddenly get tired of the whole business and bug out at a critical time.

This makes sense. It seems only reasonable to assume that everything's gotta go some time and the more hours it has on it the more likely it is to go. This is the theory behind a lot of maintenance practices—especially with equipment where safety is a factor, like aircraft.

BUT WHEN IT COMES TO MOST ELECTRON TUBES, THIS HANDY LITTLE RULE GOES OUT THE WINDOW. BECAUSE THE LONGER AN ELECTRON TUBE HAS WORKED WELL, THE LONGER IT'S LIKELY TO WORK WELL.

Up to a point, of course. This doesn't mean your good tube keeps on getting stronger and may go on forever. It's gotta go sometime. It's just that it doesn't necessarily become less dependable with age.

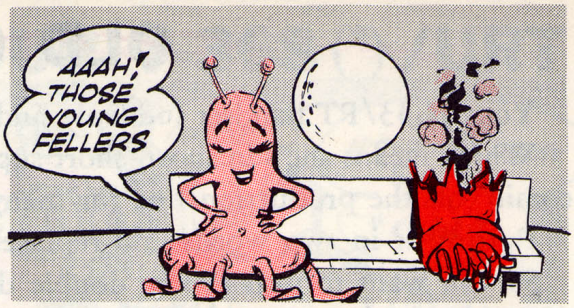
If a tube is working all right today, it has as much chance of working all right tomorrow—and a month from now—as a new tube. Maybe even more of a chance.



This happy little characteristic of an electron tube is not so surprising when you look into it a little more. The most critical period for a tube is during the first few operating hours. It then has a chance to shape up or ship out . . . and if it passes its basic, its got a bright future ahead. Or at least a glowing one.

So the chances are that a tube that's won its spurs during those first hours will continue to put out like the tested trooper it is.

Which is more than you can say for a new tube. A spanking new tube is sorta like a new girl friend. She may be prettier than the old one but her performance is a mighty uncertain matter. In many circuits a tube must match up with other circuit components —and you know the old tube was pretty well matched up.



Now this doesn't mean you should continue good tubes in use if your manuals say to replace 'em after a certain number of hours . . . or at a periodic service. There may be other good reasons for having you switch tubes.

But in those cases where there's no specified time life for the tubes, think twice before you replace a perfectly good tube just because it's seen a little service. Because tubes, like some other things, merely get older—they don't **necessarily** wear out. And there's every reason to believe the more experience they've had the better and longer they'll put out for you.

SHORT ONE FOR SHORTS

That mysterious short in your multimeter ME-77/U, used with your multimeter AN/URM-105, could be caused by the iridium plating on the switches scraping off and shorting the contacts. Clean this stuff off as soon as it shows up and save yourself some trouble. A little light air pressure (and that means very light) may put your shorted meter back into operation. If it doesn't, have your support clean it. And sorta watch it next time.

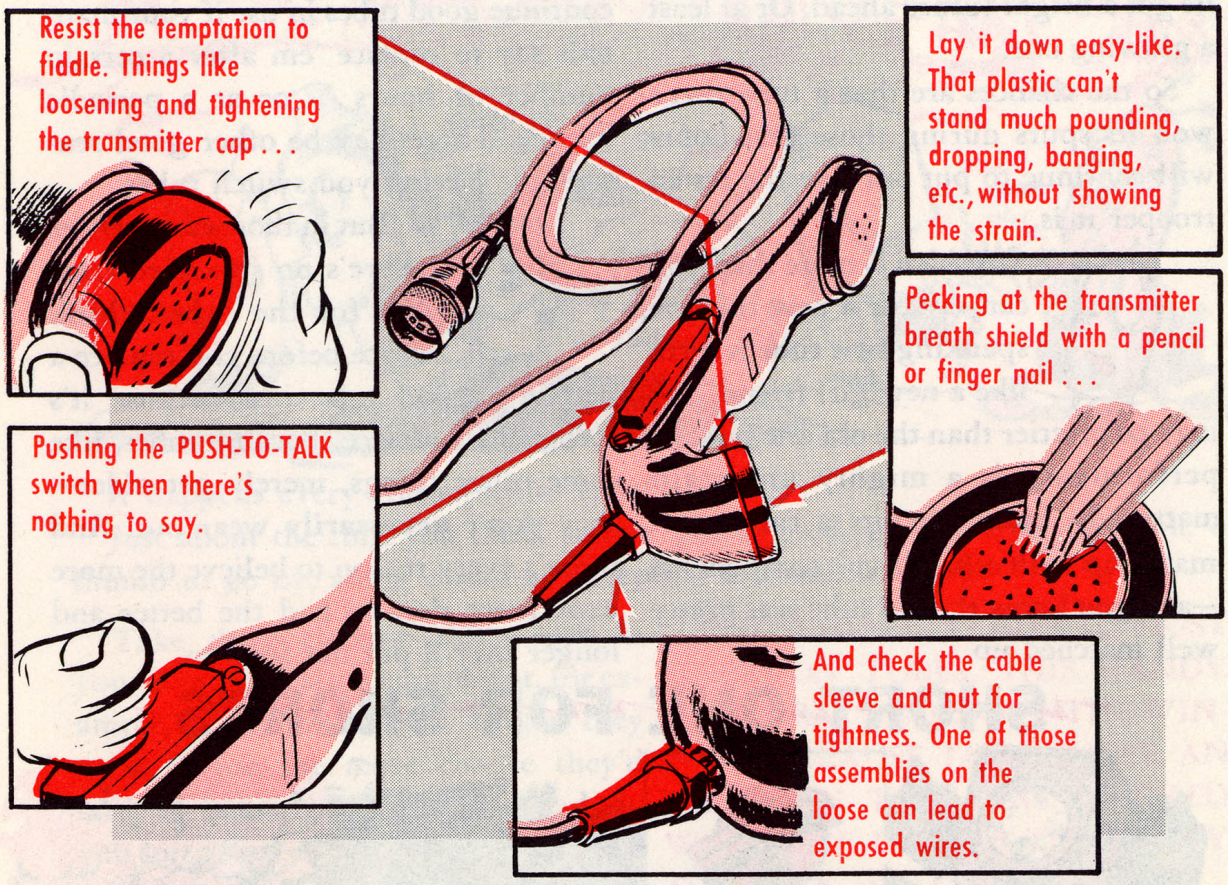
OLD GOLD

Your H-33/PT handset suddenly finds itself something like a collector's item.

Which means she's in short, short supply—with little chance of any new ones comin' off the production line for many a moon.

Putting it in two words: no replacements!

So you want to pull PM in double doses whenever you handle one of those H-33's. Little things like . . .



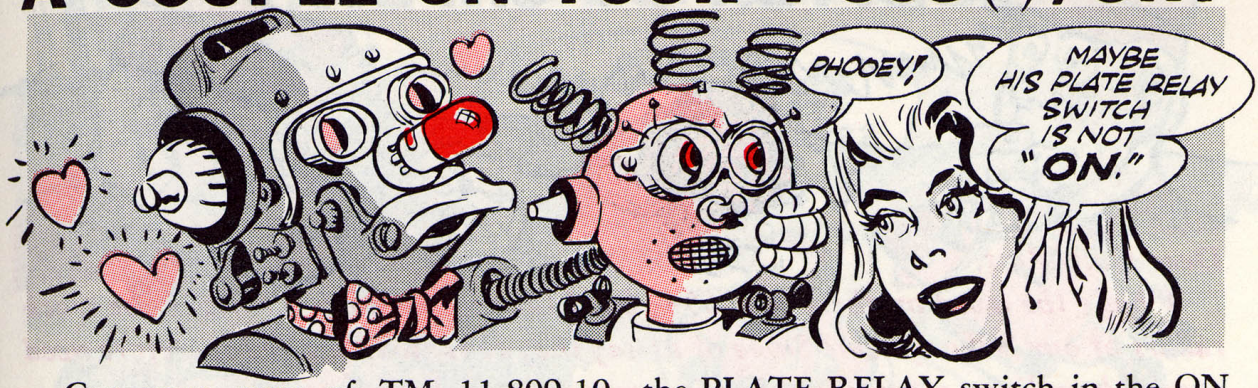
NEW-TYPE TUBE TALK

Don't push another button on your TV-7/U-series electron tube test set unless you've got the latest test data in hand. And that's in TB 11-6625-274-12/1, dated Jan 62. It calls for new selector settings on the new-type 1V2 tubes, among other things.

OOPS! WRONG CONNECTOR

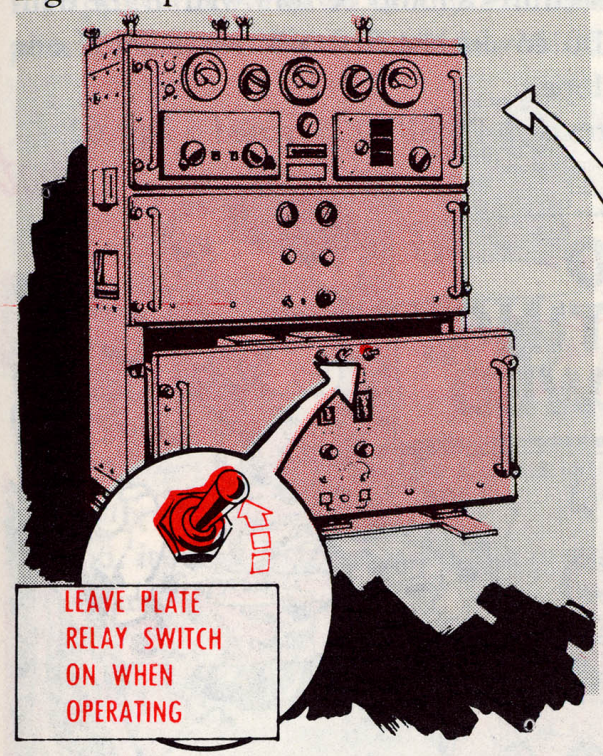
So the filter section test cable of your MK-155/TCC test kit has a female connector when it ought to have a male. H'mmmm. Just replace the female with a 21-contact male connector, FSN 5935-809-4735 (SIG). You won't need a whole new cable.

A COUPLE ON YOUR T-368(*)/URT



Got your copy of TM 11-809-10 (May 58) handy? It's your operator's manual for the T-368 radio transmitter series.

Well, turn to paragraph 20 on page 31—where it says AM Operation. It says there to throw the PLATE RELAY switch to OFF (down) when performing AM operation.

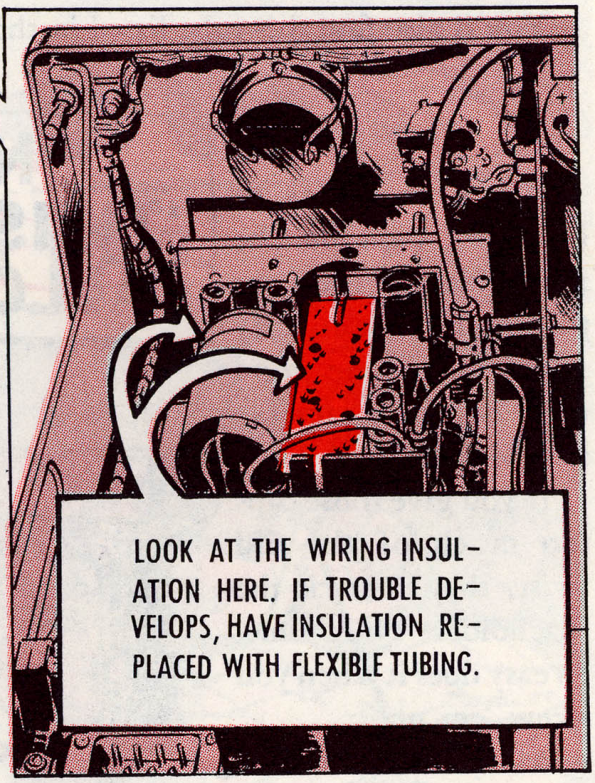


She works OK this way but there's one little thing: Plate relay K6 is repeatedly energized and deenergized, which may cause the contacts to burn or pit in quick order.

So, to head off this trouble, just leave the PLATE RELAY switch in the ON or up position when you're operating.

But . . . before you sign off on your transmitter, make one more little note. When the ambient temperature gets higher than about 70 degrees F, you might get some cooking in the RF deck.

Keep an eye on the wiring insulation behind the oscillator-multiplier assemblies. When it gets real warm in there it can sizzle the insulation.



If trouble develops, have your repairman replace the insulation with flexible sleeving, FSN 5970-226-2262.

Dear Half-Mast,

What's the word on these ML 6544 hard tube modulators we use in the track radars of our Nike system? Some of us say they're radioactive and therefore need special handling—especially when it comes time to dispose of 'em.

Others say the tube is harmless, radioactively speaking, and needs no special handling. Who's right, Sarge.

SFC J. H.

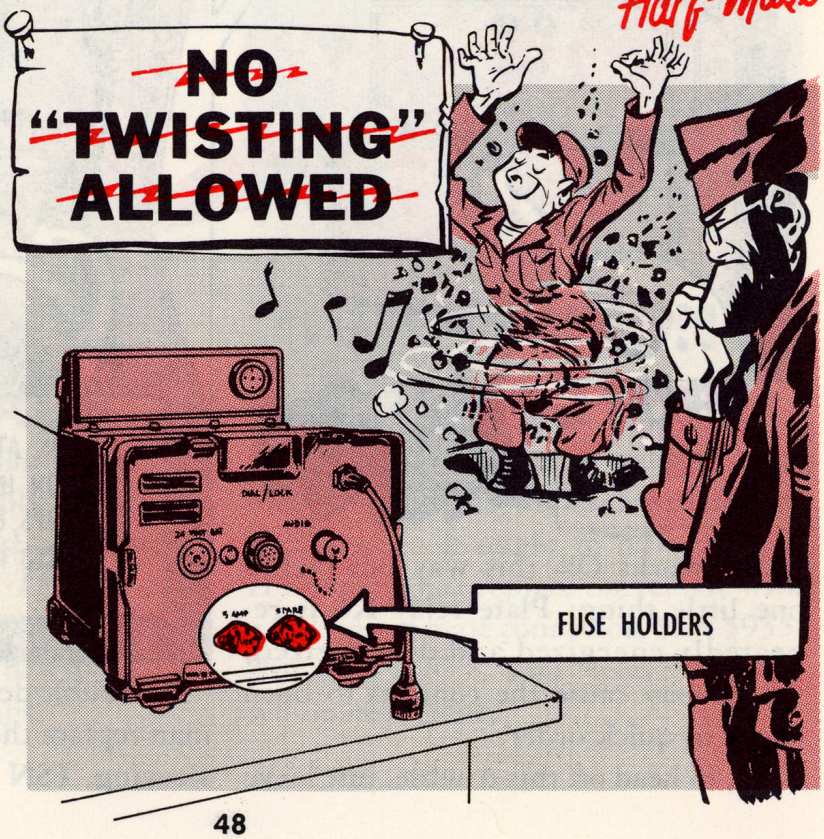
Dear Sergeant J. H.,

I think I can put an answer to that on the scope right away.

Electron Tube, type 6544, FSN 5960-561-8230, is considered radioactive. She's listed in TB ORD 648, Change 3, dated 26 May 61. This TB passes the word on what tubes are radioactive and what procedures should be followed in the handling, disposal and storage of them. It also covers the first aid treatment if one of those babies falls and breaks its envelope.

You'll also find this tube listed in the revised TB SIG 225, dated 6 Apr 62.

Half-Mast

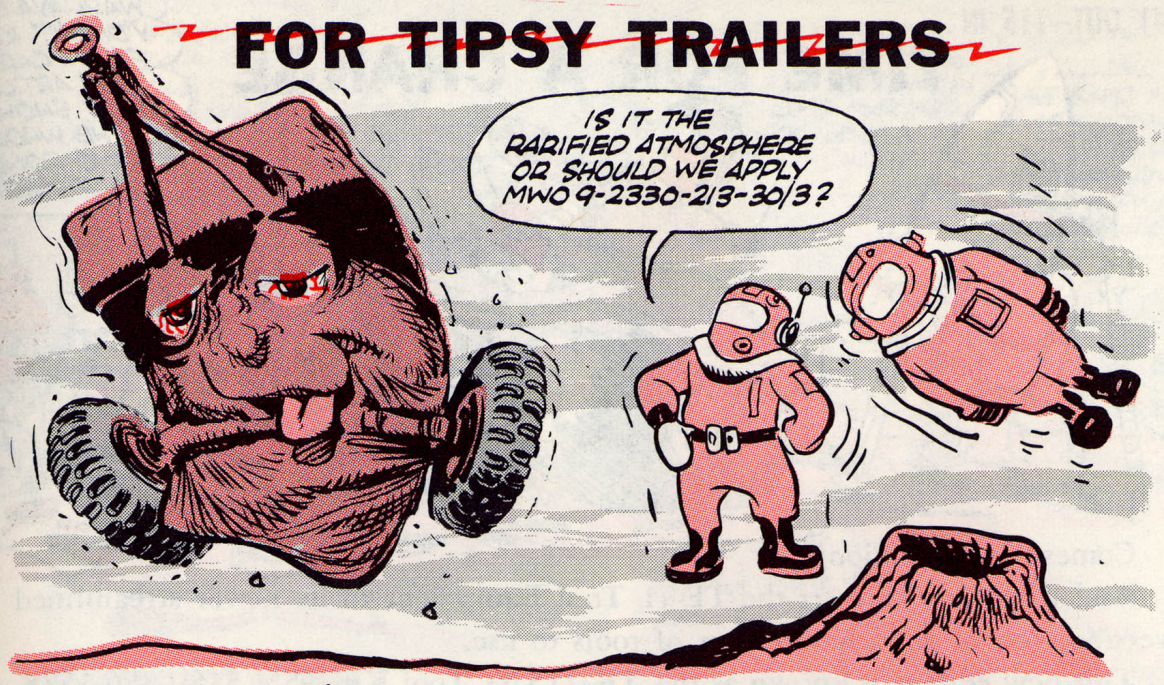


When it comes to inserting caps on the fuzeholders of your amplifier-power supply AM-598/U, one good turn does not deserve another.

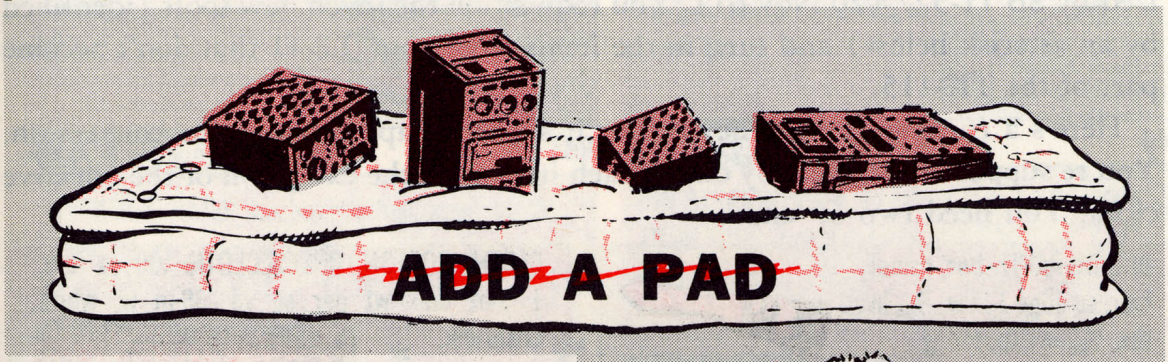
If you give those caps too much of the old twist, they'll crack the fuzeholders every time. So easy does it when you screw 'em up.

All you want is a good connection... and you'll never get it by cracking the receptacle.

FOR TIPSY TRAILERS



You say your AN/TPS-25 radar set doesn't have a leg to stand on when it's mounted in that 1½-ton trailer? Then hustle your trailer back to your support for application of MWO 9-2330-213-30/3 (12 Apr 62). It provides a rear support leg for the M104, M104A1, M105A1 and M105A2 trailers.



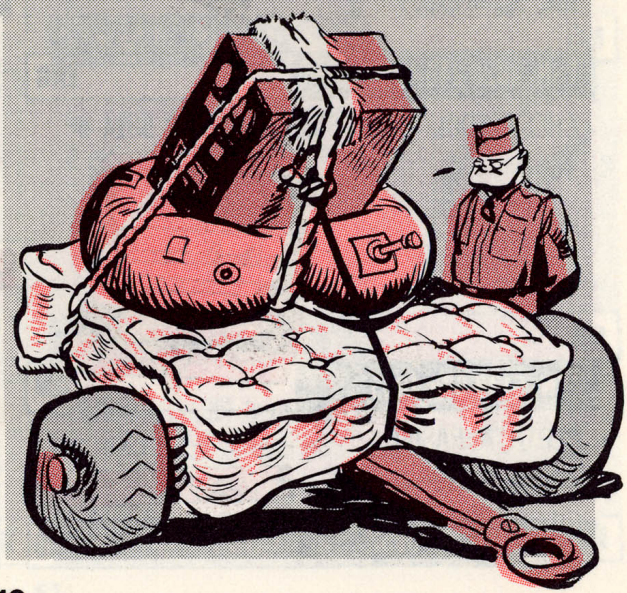
ADD A PAD

The way you lay 'em down makes all the difference.

And, it helps to have a salvage mattress handy.

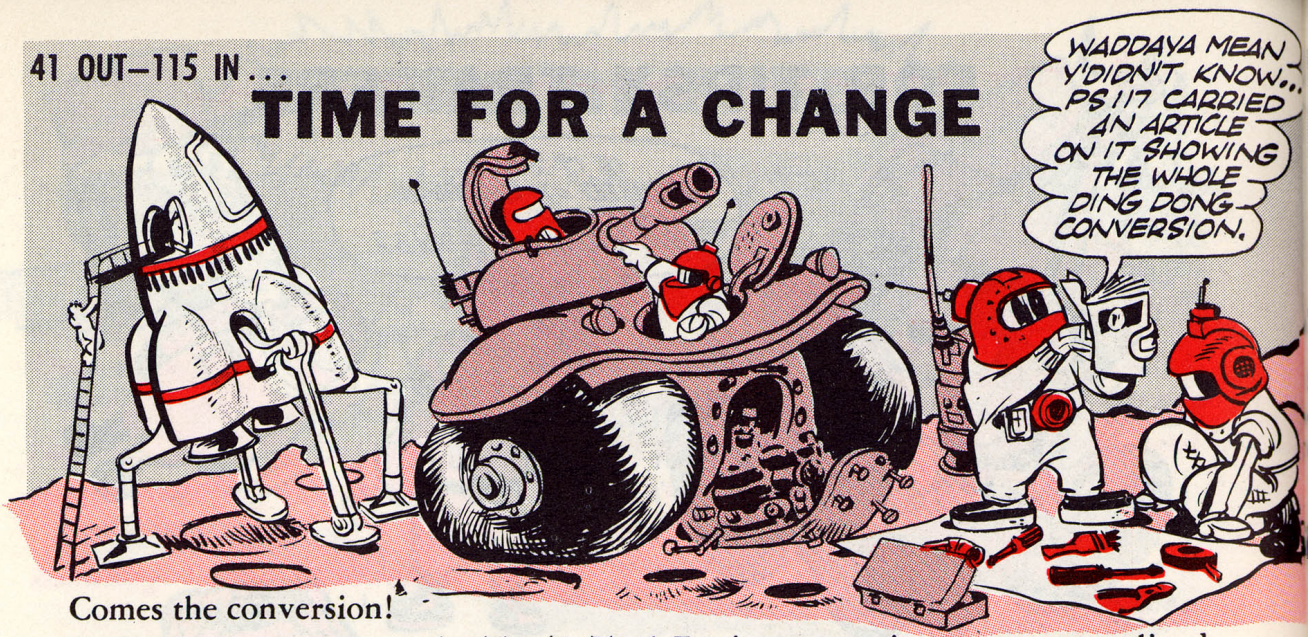
That's the story for keeping your commo equipment from getting busted up any time you lay it on the deck of a truck for the trip between your unit area and the shop.

Putting the equipment on an old mattress will keep it from being all scratched and shook up every time you hit a bump.



41 OUT—115 IN . . .

TIME FOR A CHANGE



Comes the conversion!

And when you convert the TE-41 Tool Equipment to its newer streamlined version, you've got a handier set of tools to use.

This new edition is known as the TK-115/G Tool Kit, FSN 5180-856-1578. It combines the most frequently used tools of the TE-41 with seven new items to give you a neat little package, complete with a more compact tool box.

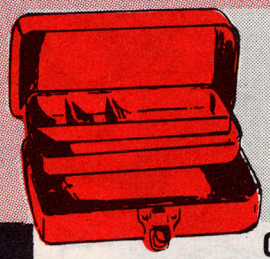
Every unit with a TE-41 is supposed to convert it to the TK-115/G, as authorized by SB 11-527 (20 Nov 61). You requisition the seven new tools (identified by an asterisk below) and turn in the items from your TE-41 that don't become part of the TK-115.

Here's a rundown of the new kit as it should shape up after the conversion. You're supposed to have only one of each item with the exception of the abrasive cloth. You need two of 'em.

BRUSH, PAINT: flat, camel hair; sq edge 1-in w, 13/64-in thk, 15/16-in exposed lg.

FSN 8020-245-4509 — ENG

CHEST, TOOL: Union Steel Chest; SC 5314 or equal.



* FSN 5140-678-4805 — QM

CLOTH, ABRASIVE: crocus, 9x11.

FSN 5350-192-5052 — 2 ORD

CLOTH, COTTON, CHEESECLOTH: .90 oz min, 1.06-oz max wt per sq yd, 36-in w, white, unshrunk.

* FSN 8305-170-5062 — 2 QM

EXTRACTOR, ELECTRON TUBE: basket type designed for 9 pin min tube series, special features, one end used for extracting opposite end.

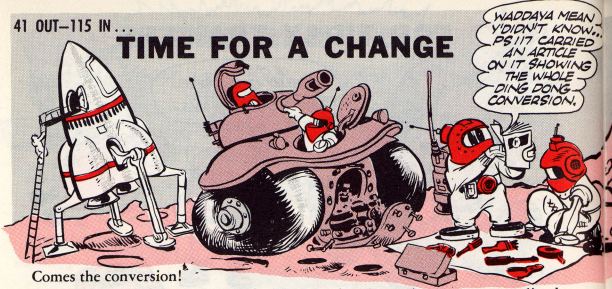
FSN 5120-508-0584 — QM

EXTRACTOR, ELECTRON TUBE: basket type designed for 7 pin min tube series.

FSN 5120-293-2696 — QM

41 OUT—115 IN . . .

TIME FOR A CHANGE



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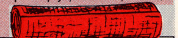
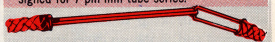


* FSN 8305-170-5062 — 2 QM

EXTRACTOR, ELECTRON TUBE: basket type designed for 9 pin min tube series, special features, one end used for extracting opposite end.

FSN 5120-508-0584 — QM

EXTRACTOR, ELECTRON TUBE: basket type designed for 7 pin min tube series.



FSN 5120-293-2696 — QM

EXTRACTOR, TUBE: friction type, designed for vacuum tube 4x150 series.

FSN 5120-293-2699 — QM

FLASHLIGHT: Tubular case; plastic, OD, rt. angle; fixed focus; 2 batteries accommodated; plastic lens, colorless, 1 1/16 in dia; miniature flanges base lamp accommodated; waterproof.

FSN 6230-264-8261 — ENG

HAMMER, HAND: machinist's ball peen, 1/4 lb, nom hd wt.

* FSN 5120-243-2985 — QM

INSULATION TAPE, ELECTRICAL (TL-636/U): polyethylene, black, non-adhesive, 3/4-in w, 30 ft lg, 0.015-in TO 0.017-in thk.

FSN 5970-296-1175 — SIG

INSULATION TAPE, ELECTRICAL (TL-83): cotton, black, adhesive, 3/4-in w, 82.5 to 85 ft lg, 0.015-in nom thk, rubber coating, rubber impregnated.

FSN 5970-296-3305 — SIG

KNIFE, POCKET (TL-29): cutting blade 2-3/8-in min to 2-5/16-in max lg, w/screwdriver & wire scraper, w/clevis.

FSN 7340-240-5943 — QM

MIRROR, INSPECTION: 1 1/2-in mirror dia, 6 3/4-in nom lg.

FSN 5120-448-2455 — QM

PIN STRAIGHTENER, ELECTRON TUBE: 7 or 9 pin min type ty base.

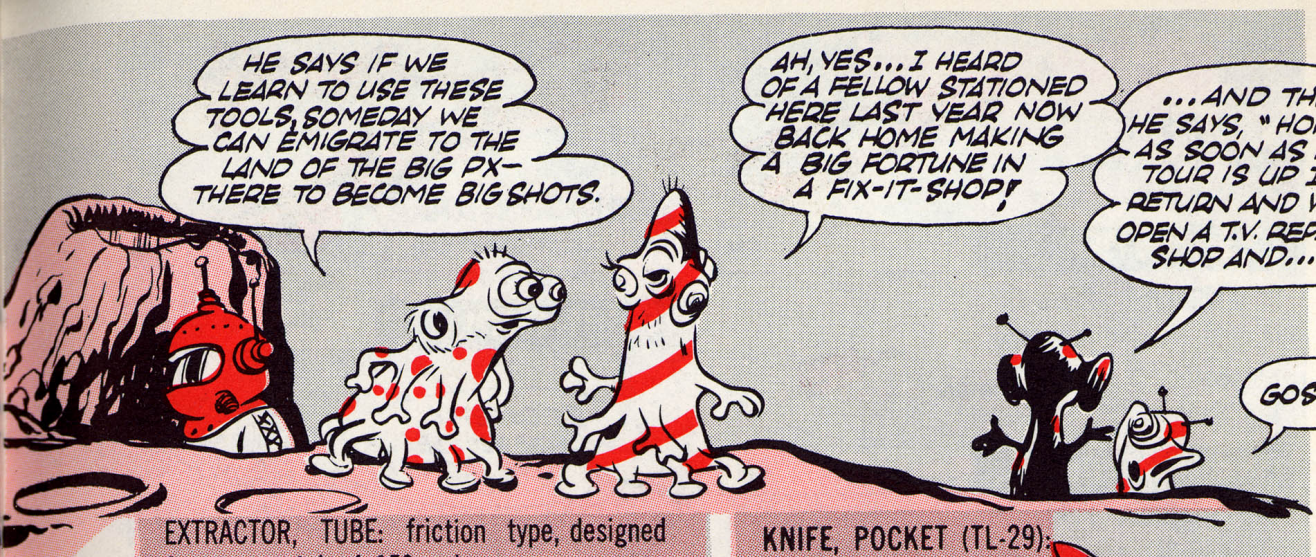
FSN 5120-392-8361 — QM

PLIERS, DIAGONAL CUTTING (TL-103): Type IV, Class 1, style B 5-in nom size.

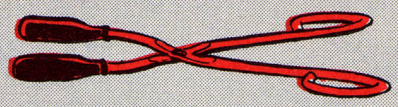
FSN 5110-224-1896 — QM

PLIERS (TL-126): lg rd nose, w o cutter, 6-in nom size. Type XI, class 1, style B.

FSN 5120-268-3579 — QM



EXTRACTOR, TUBE: friction type, designed for vacuum tube 4x150 series.



FSN 5120-293-2699 — **QM**

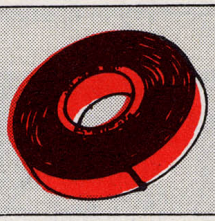
FLASHLIGHT: Tubular case; plastic, OD, rt. angle; fixed focus; 2 batteries accommodated; plastic lens, colorless, $1\frac{11}{16}$ in dia; miniature flanges base lamp accommodated; waterproof.

FSN 6230-264-8261 — **ENG**

HAMMER, HAND: machinist's ball peen, ¼ lb, nom hd wt.

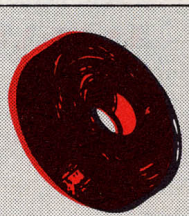
FSN 5120-243-2985 — **QM**

INSULATION TAPE, ELECTRICAL (TL-636/U): polyethylene, black, non-adhesive, ¾-in w, 30 ft lg, 0.015-in TO 0.017-in thk.



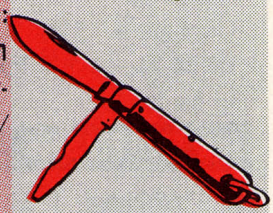
FSN 5970-296-1175 — **SIG**

INSULATION TAPE, ELECTRICAL (TL-83): cotton, black, adhesive, ¾-in w, 82.5 to 85 ft lg, 0.015-in nom thk, rubber coating, rubber impregnated.



FSN 5970-296-3305 — **SIG**

KNIFE, POCKET (TL-29): cutting blade $2\frac{3}{8}$-in min to $2\frac{9}{16}$-in max lg, w/screwdriver & wire scraper, w/clevis.



FSN 7340-240-5943 — **QM**

MIRROR, INSPECTION: $1\frac{1}{8}$-in mirror dia, $6\frac{3}{4}$-in nom lg.

FSN 5120-448-2455 — **QM**

PIN STRAIGHTENER, ELECTRON TUBE: 7 or 9 pin min type ty base.

FSN 5120-392-8361 — **QM**

PLIERS, DIAGONAL CUTTING (TL-103): Type IV, Class 1, style B 5-in nom size.

FSN 5110-224-1896 — **QM**

PLIERS (TL-126): lg rd nose, w o cutter, 6-in nom size. Type XI, class 1, style B.

FSN 5120-268-3579 — **QM**

PLIERS, SLIP JOINT: stght nose, comb, w/ cutter; 6 in lg.

FSN 5120-223-7396 **QM**

SCREWDRIVER, CROSS TIP (TL-469/U): Phillips type tip, plastic hdl, tip size #1, 1-in blade lg.

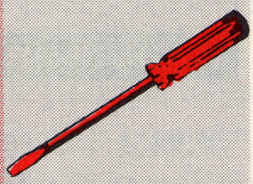
FSN 5120-224-7370 **QM**

SCREWDRIVER, FLAT TIP (TL-496/U): plastic hdl, flared tip, 1/4-in w tip, 1-in lg blade.

*

FSN 5120-222-8866 **QM**

SCREWDRIVER, FLAT TIP (TL-456/U): stght sided tip, plastic or wood hdl, non-removable blade, 1/8-in nom tip w, 4-in nom blade lg.



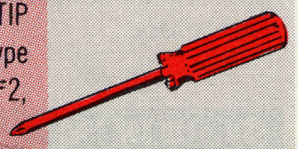
FSN 5120-596-1183 **QM**

SCREWDRIVER, CROSS TIP: Phillips type tip, plastic hdl, tip size #1, 3-in blade lg.

*

FSN 5120-240-8716 **QM**

SCREWDRIVER, CROSS TIP (TL-457/U): Phillips type tip, plastic hdl, tip size #2, 4-in blade lg.

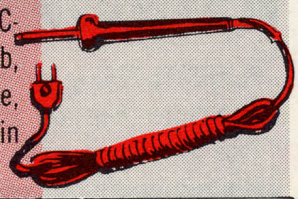


FSN 5120-234-8913 **QM**

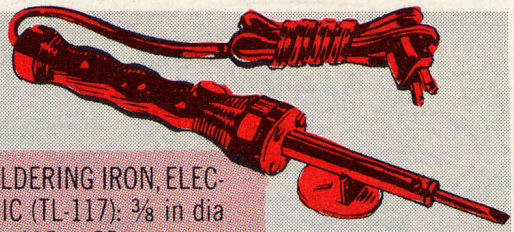
SCREWDRIVER, FLAT TIP (TL-358/U): wood hdl, flared tip, 1/4-in w tip, 4-in lg blade.

FSN 5120-277-9491 **QM**

SOLDERING IRON, ELECTRIC (TL-606A U): 3/8 lb, pyramid tips, plug type, setscrew fastenings, 1/8-in dia, 115 v, 25 w ac.



FSN 3439-240-5641 **ORD**



SOLDERING IRON, ELECTRIC (TL-117): 3/8 in dia tip; 115 v; 85 w ac.

FSN 3439-241-3221 **ORD**

SOLDERING IRON, NON-ELECTRIC: stght shot, ctg type.

*

FSN 3439-588-1007 **ORD**

TIP, pyramid, 1/8-in dia, #7

FSN 3439-588-1008

1/4-in dia, #6

FSN 3439-588-1009

3/8-in dia, #5

FSN 3439-588-1010

BRUSH, WIRE, TUBE: sgle spiral, S fill, 5 7/8-in lg overall, 7/8-in dia brush part, 1 1/2-in lg brush part.

FSN 7920-577-4057 **QM**

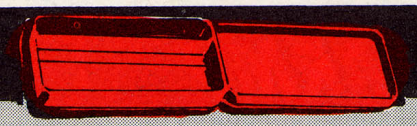
CARTRIDGE, SOLDERING IRON, NON-ELECTRIC: rd mtl case, 1 29/32-in lg, 3/4-in dia overall, chemical filled mtl case w/ primer percussion cap.

FSN 3439-711-0524 **12** **ORD**

SOLDER, TIN ALLOY: wire rosin-cored, 1/16-in dia, 5lb spool.

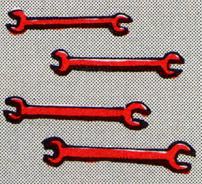
FSN 3439-163-4351 **ORD**

WRENCH KIT (TL-483/U): w/case.
FSN 5120-408-2164 **QM**

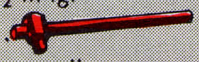


WRENCH, OPEN END, FIXED: dbl hd 15 deg angle of hds.

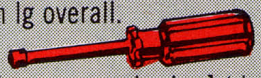
FSN	OPENING	LENGTH OVERALL	THICKNESS
5120-228-9528	13/64 & 7/32	3	7/64
5120-278-2421	15/64 & 1/4	3	3/32
5120-277-2307	5/16 & 3/8	3 3/4	13/64
5120-277-4593	9/32 & 11/32	3 1/2	1/8



HANDLE, SOCKET WRENCH, SLIDING T-TYPE: 1/4-in sq dr; 4 1/2-in lg.
FSN 5120-221-7966 **QM**

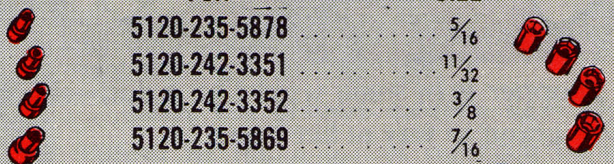


HANDLE, SOCKET WRENCH: spin type, 1/4-in sq dr, 5 5/16-in lg overall.
FSN 5120-242-3256 **QM**



SOCKET, SOCKET WRENCH: sq drive, hex shape, wrench opng, regular lg, 1/4-in drive size:

FSN	SIZE	FSN	SIZE
5120-236-2262	3/16	5120-235-5878	5/16
5120-236-2263	7/32	5120-242-3351	11/32
5120-236-2264	1/4	5120-242-3352	3/8
5120-232-3345	9/32	5120-235-5869	7/16



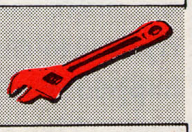
PLIERS, SLIP JOINT: angle nose, mltple tongue and groove, 5-in nom size.
FSN 5120-278-0350 **QM**

CASE, SOCKET WRENCH SET: sheet S, metal divider lengthwise to form two compartments, 1 for socket wrenches, 1 for drive parts and tools, cover hinged on narrow end, w/friction snap closing, semi-gloss paint finish, 6 3/4-in lg overall, 2 15/16-in w overall, 1 1/4-in h overall.
FSN 5120-356-3874 **QM**

WRENCH, OPEN, ADJUSTABLE: sgle hd type, 0 to 0.510-in jaw opng, cap 4-in nom lg overall. *

FSN 5120-240-5330 **QM**

WRENCH, OPEN END, ADJUSTABLE (TL-111): sgle hd; 0 to 0.760 in jaw opng, 6 in lg.



FSN 5120-264-3795 **QM**

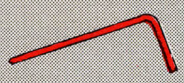
WRENCH SET, SPANNER: 5 cad pl steel, single head, fixed type pin spanner wrenches.

FSN 5180-393-2126 **QM**

WRENCH SET; HEX **FSN 5120-596-1244** **QM**

WRENCH, SOCKET HEAD SCREW: hex; 0.035 in across flats.
FSN 5120-198-5400

WRENCH, SOCKET HEAD SCREW: hex; 0.050 in across flats.
FSN 5120-198-5401

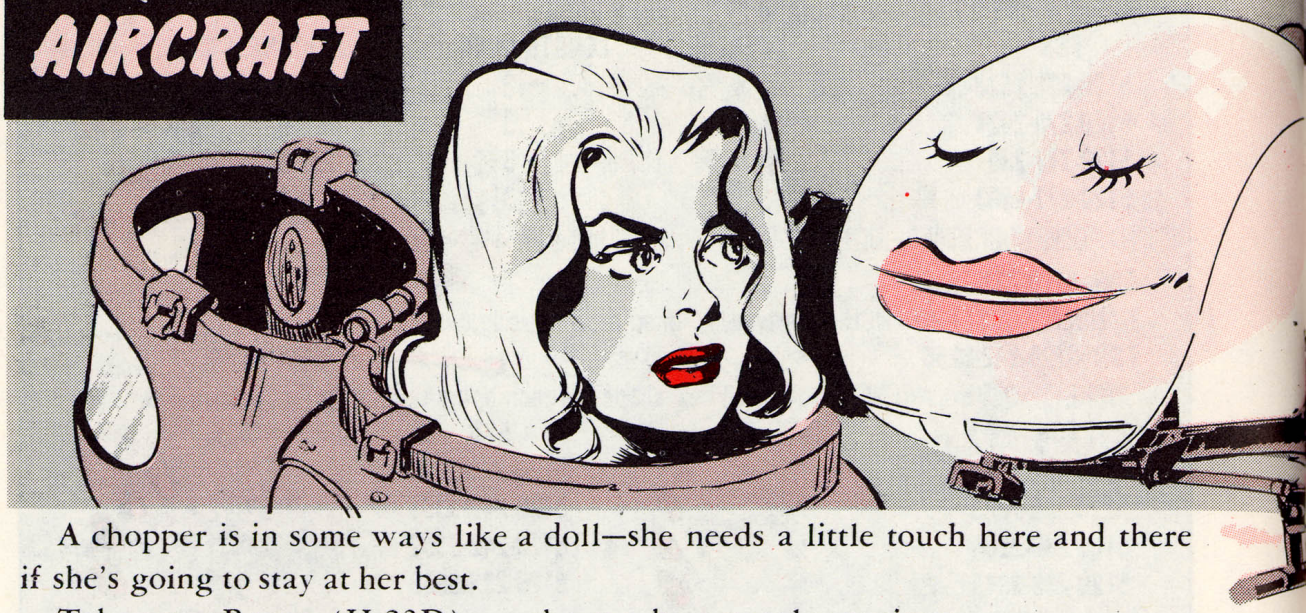


WRENCH, SOCKET HEAD: hex dr; L-type hdl.

FSN	SIZE	NOM ARM LG	FSN	SIZE	NOM ARM LG
5120-198-5398	1/16	1 3/4	5120-240-5300	3/16	2 3/4
5120-224-2504	5/64	1 7/8	5120-242-7411	7/32	3
5120-242-7410	3/32	2	5120-224-4659	1/4	3 1/4
5120-240-5292	1/8	2 1/4	5120-240-5274	5/16	3 3/4
5120-198-5392	5/32	2 1/2	5120-198-5390	3/8	4 1/2

ARMY AIRCRAFT

SOME MAINTENANCE TIPS CAN HELP KEEP YOUR H-23D A... RAVEN

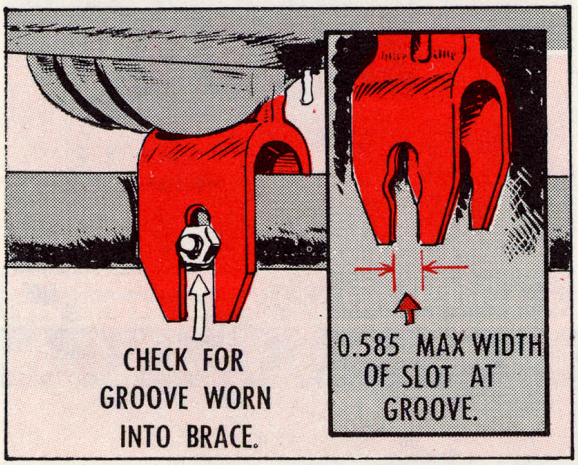


A chopper is in some ways like a doll—she needs a little touch here and there if she's going to stay at her best.

Take your Raven (H-23D) . . . she can be a puzzler at times.

You get four-maybe-five hundred hours on her and she'll likely as not get weak in the knees and come up with a vibration you never had before.

You'll feel the vibration when you run 'er up on the ground—not in the air. So right away you can figure the problem has to be someplace in the landing skid framework.



You can save yourself some time by checking the aft brace body attachment, first off. The nylok washers used with the brace bolt have a habit of wearing right into the brace slot. And when this happens you're not going to have a tight brace. Like it says in TM 1-1H-23D-2, if the width of the slot is more than 0.585 inch at the wear spot, you want to change the brace to get rid of the vibration.

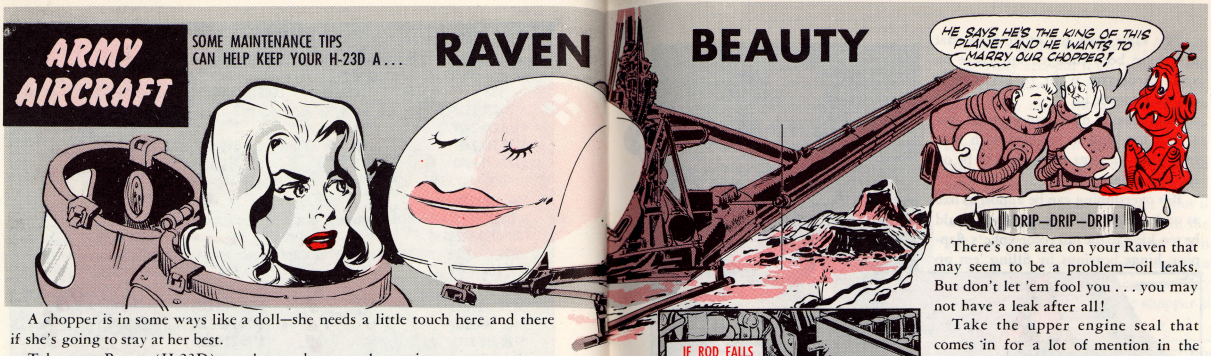
NO SHOWER, PLEASE

Your bird ever throw a spark tantrum during a PE? Could happen, with the battery connected, what with access covers off here and there and you checkin' one thing and 'nother that requires battery power. All it takes to set the stage for a shower of sparks is for somebody to take the cover off the starter and reverse current relay—and then somebody else decides to take the battery cover off.

What usually happens is that the

ARMY AIRCRAFT

SOME MAINTENANCE TIPS CAN HELP KEEP YOUR H-23D A... RAVEN BEAUTY



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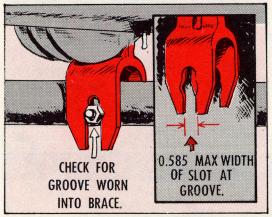

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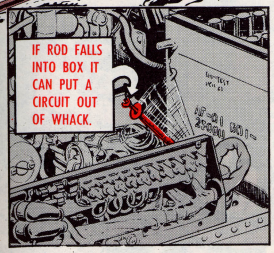


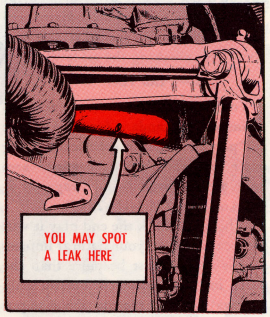
battery case hold-down rod falls right smack into the reverse current cutout relay and you've got your own Fourth of July . . . can play havoc in the junction box by putting an electrical circuit out of whack.

But your bird won't get damaged if you try this. If you don't need battery juice, disconnect the battery **before** you take the relay cover off . . . that'll prevent electrical damage. And, with or without the battery connected, tape or lockwire the battery case rod to a handy place. Then the rod can't cause any **physical** or **electrical** damage.

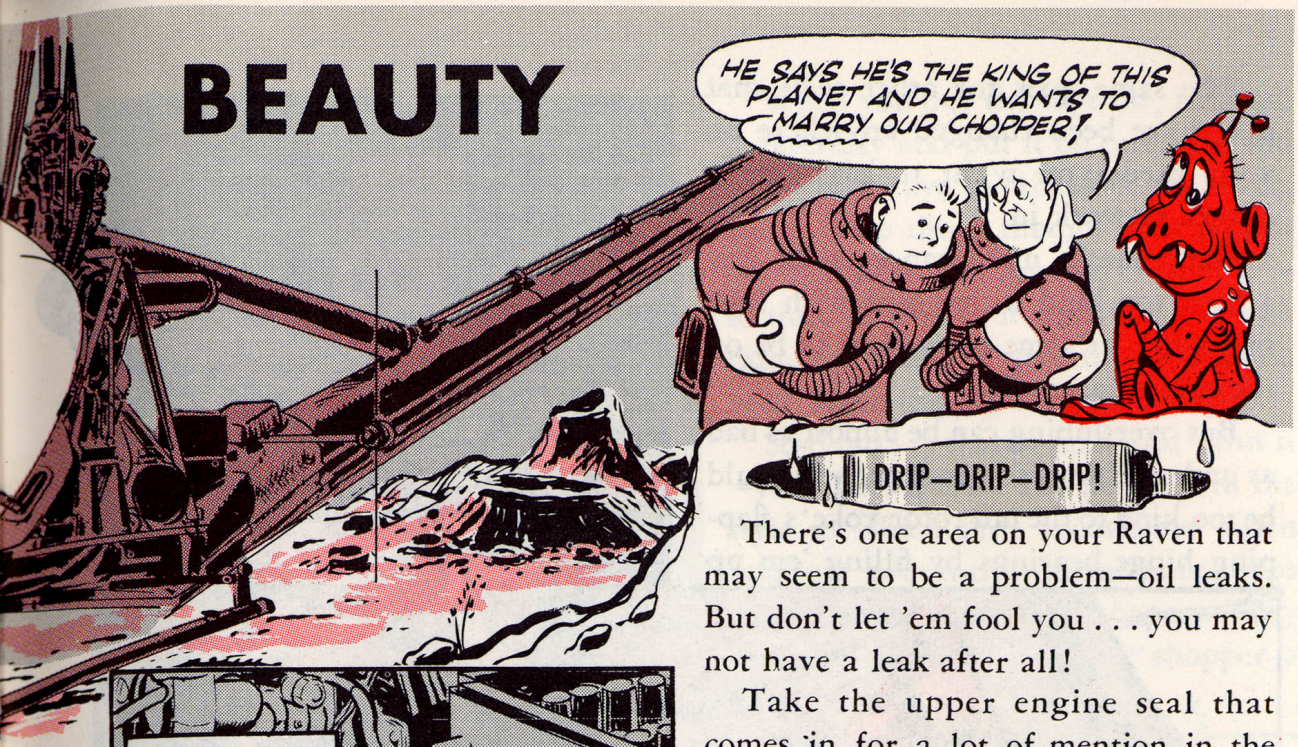
There's one area on your Raven that may seem to be a problem—oil leaks. But don't let 'em fool you . . . you may not have a leak after all!

Take the upper engine seal that comes in for a lot of mention in the drip—drip—drip problem.

You may just have gotten your chopper back from support so there're gonna be new seals in there. At first you



may spot a leaky seal here—but don't get riled. Just remember you want to put a few flying hours on the bird to seat this seal. After that you probably won't have that leak.



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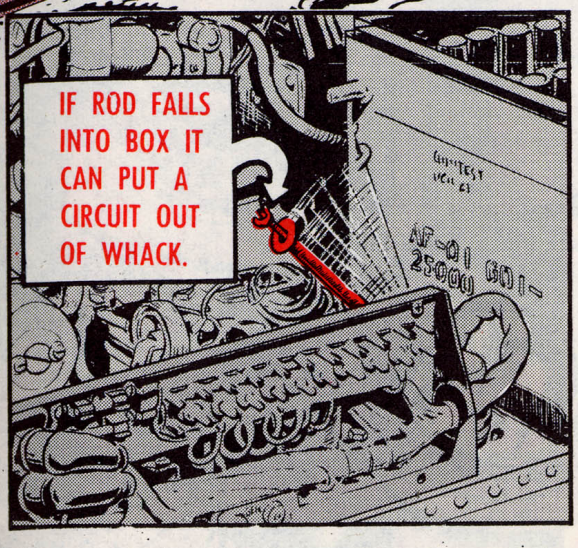

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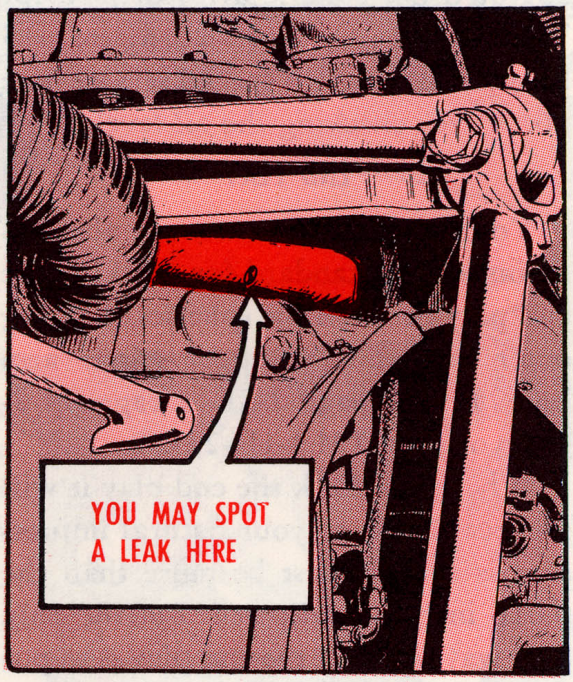
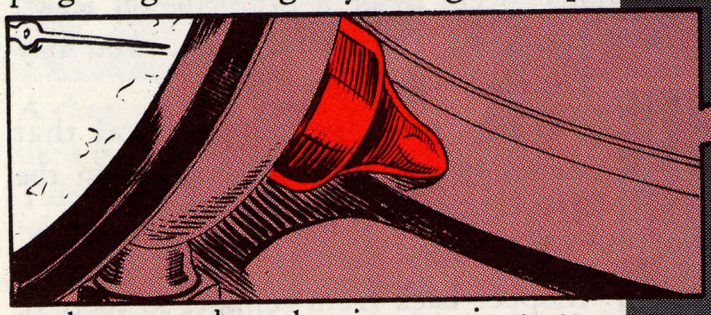


may spot a leaky seal here—but don't get riled. Just remember you want to put a few flying hours on the bird to seat this seal. After that you probably won't have that leak.

The same goes for other seals that may have been changed anywhere on your bird—you want to give 'em a chance to work in.

Sometimes a mech can even be just a little too kind to his bird with lube by giving 'er some extra—just to be on the safe side.

But over-lubing can be almost as bad as under-lubing. For example you could be too kind to the tail rotor yoke's flapping hinge bearings by filling 'em up



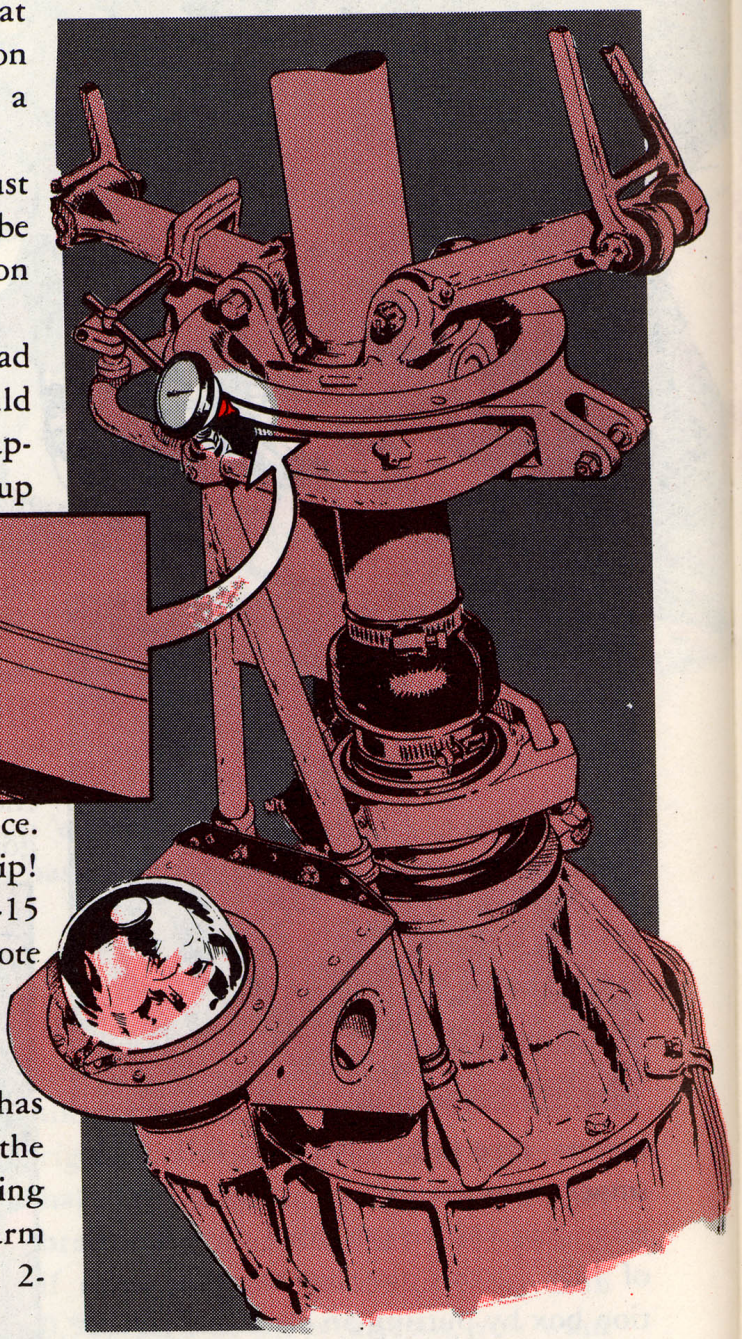
to the top and not leaving an air space. So you'd get a static drip—drip—drip! TM 1-1H-23D-2, page 1-20, figure 1-15 has the scoop with a special service note (6, A) for checking the oil level.

END PLAY

Your maintenance manual also has an inspection standard for checking the end play between the spherical bearing outer race and the upper scissor arm bore. It's on page 2-81, paragraph 2-180b of your TM 1-1H-23D-2.

When you check the end play it will feel real loose, so your natural impression is that it must be more than the 0.016 inch max allowed. But the only sure way to check the end play is to put a dial indicator up there and check it.

In all probability you'll find that the play is within the limits and your bird won't have to go to your support for correction.



There're other ways you can keep your "aircraft availability" curve in a nose-high trim too.

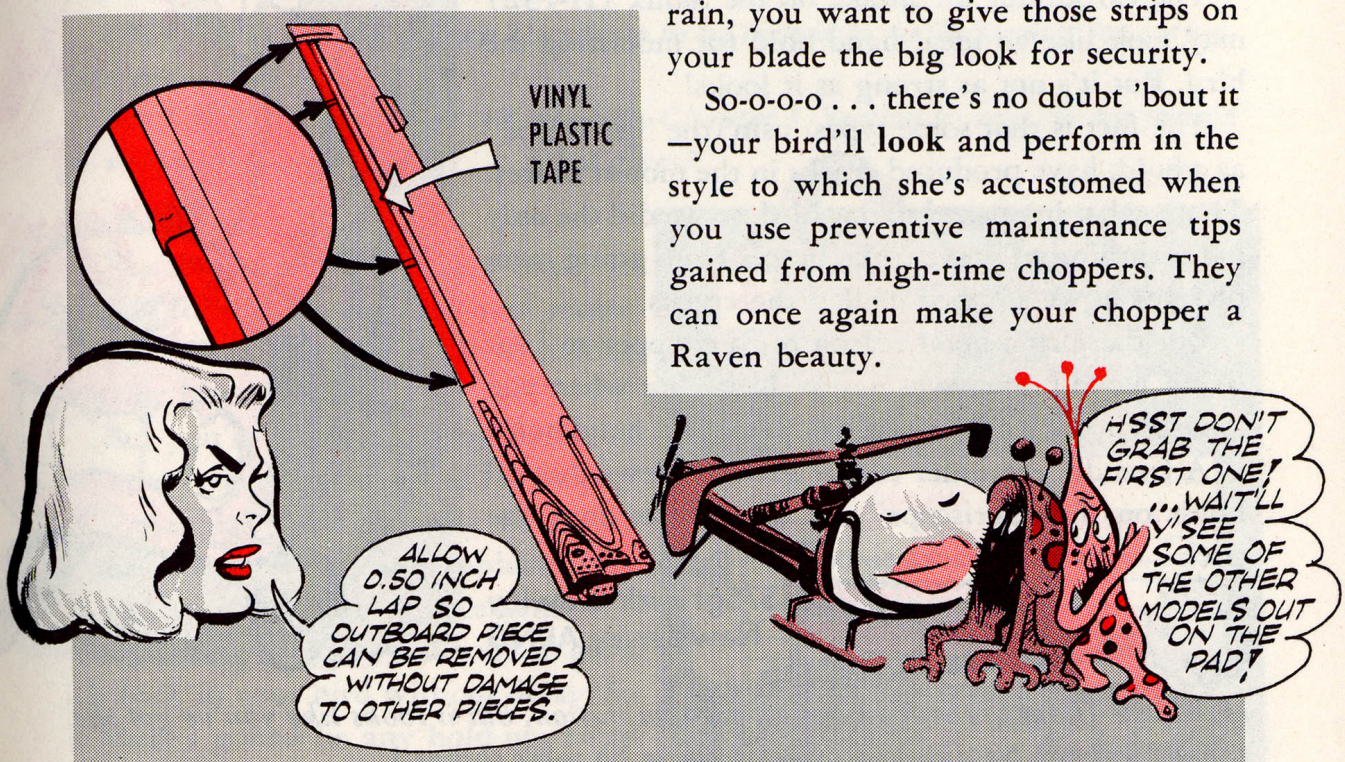
A MUSCLE SAVER

For example right now you could be spending a lot of time cleaning the steel leading edge of the main rotor blade, right?

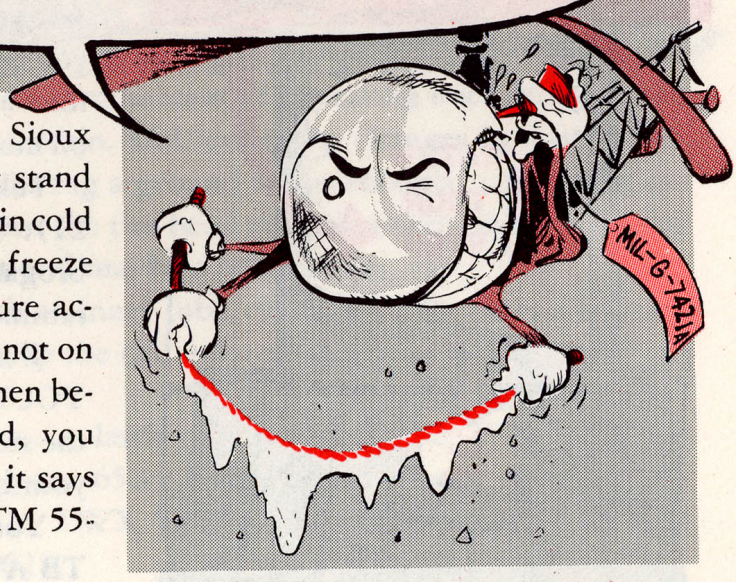
If so, run your peepers over a copy of TM 1-1H-23D-1030 (30 Oct 61) "Application of Vinyl Plastic Tape to Metal Main Rotor Blade Leading Edge." It's just made to cut down on erosion, abrasion . . . and aching muscles.

When you put the tape on, measure it carefully and put it on carefully and you won't have to rebalance the blade, either. One thing though—this tape is not recommended for rain erosion protection. And if your bird flies through rain, you want to give those strips on your blade the big look for security.

So-o-o-o . . . there's no doubt 'bout it —your bird'll **look** and perform in the style to which she's accustomed when you use preventive maintenance tips gained from high-time choppers. They can once again make your chopper a Raven beauty.



KEEP FLEXIBLE LINKAGE FLEXIBLE



The teleflex cables in your Sioux (H-13H) throttle linkage won't stand for a heavy grease or oil lube job in cold weather. This flexible linkage can freeze up on you as soon as any moisture accumulates on the lubricant . . . if not on the runup, then at altitude. So when below freezing temps are expected, you switch to MIL-G-7421A . . . like it says on page 3-39 (Lube Guide) of TM 55-1520-204-20 (Sep 60).

ALL HOLDS BARRED

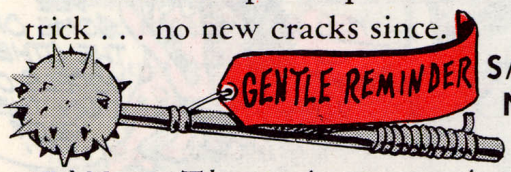
Dear Editor,

The carburetor air intake on the Sioux (H-13E) may look like an ideal hand hold for mounting the bird. But it's not as strong as it looks!

The fact is that some types, usin' the "periscope" as a hold, have produced cracks in the mount braces. That's what happened to our bird, so we did the only natural thing to prevent the braces from going completely . . . we stopped-drilled the cracks.

But there's no good reason for a chopper to look like a wood-pecker was nestin' in it. Not when you have plenty of airframe tubing to use as a hand hold!

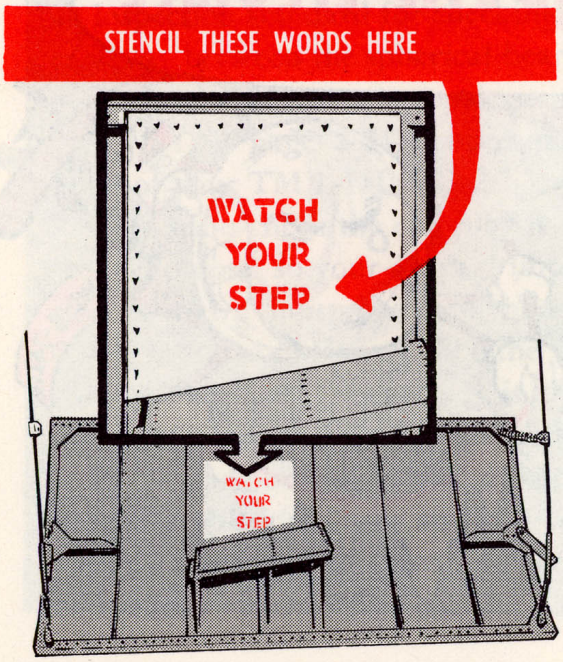
A friendly reminder to our ground crews that all holds on the "periscope" are barred has done the trick . . . no new cracks since.



S/Sgt Jack Crowley
New Jersey ARNG

(Ed Note—That periscope sure is a big temptation, but it looks like you've got the logical answer. Ya just gotta keep talking up some things.)

BEST FOOT FORWARD—SAFELY



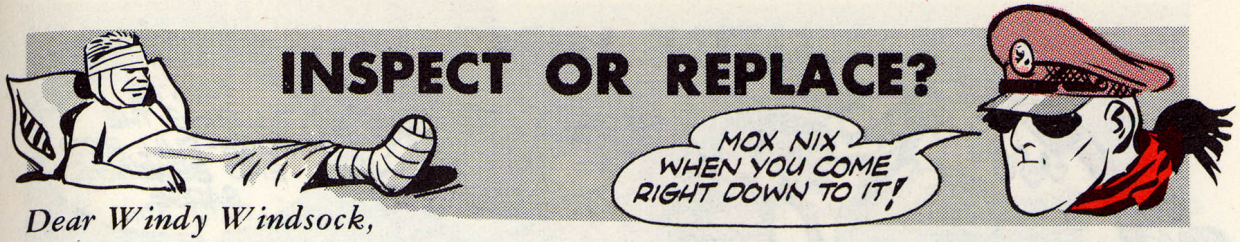
When you step into a bird you always put your best foot forward. But where you put it could lead to an injury—if you miss a step. There's only so much room on most boarding steps!

Take the step on the Shawnee (H-21). You've got room for one pair of brogans and that's about all. So a little reminder could be an ankle saver.

Why not stencil the words WATCH YOUR STEP on the riser (face) above the step on **your** bird? It'll help you put your best foot forward—safely.

You'll want to see the word on this in TB AVN 7.

INSPECT OR REPLACE?



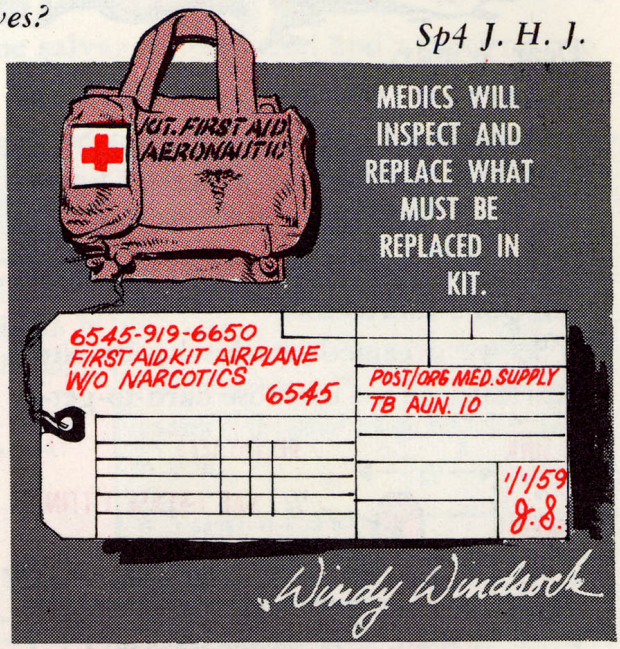
Dear Windy Windsock,

What's the story on inspecting or replacing the sealed first aid kit, FSN 6545-919-6650, in our Bird Dog (L-19)?

TB AVN 10 (1 Dec 59) says they have to be turned in to the medics for inspection every 180 days.

But TM 55-1510-202-20 (19 Apr 61), Chapter 3, Section V, says the kit should be ***replaced*** *every 180 days . . . what gives?*

Sp4 J. H. J.



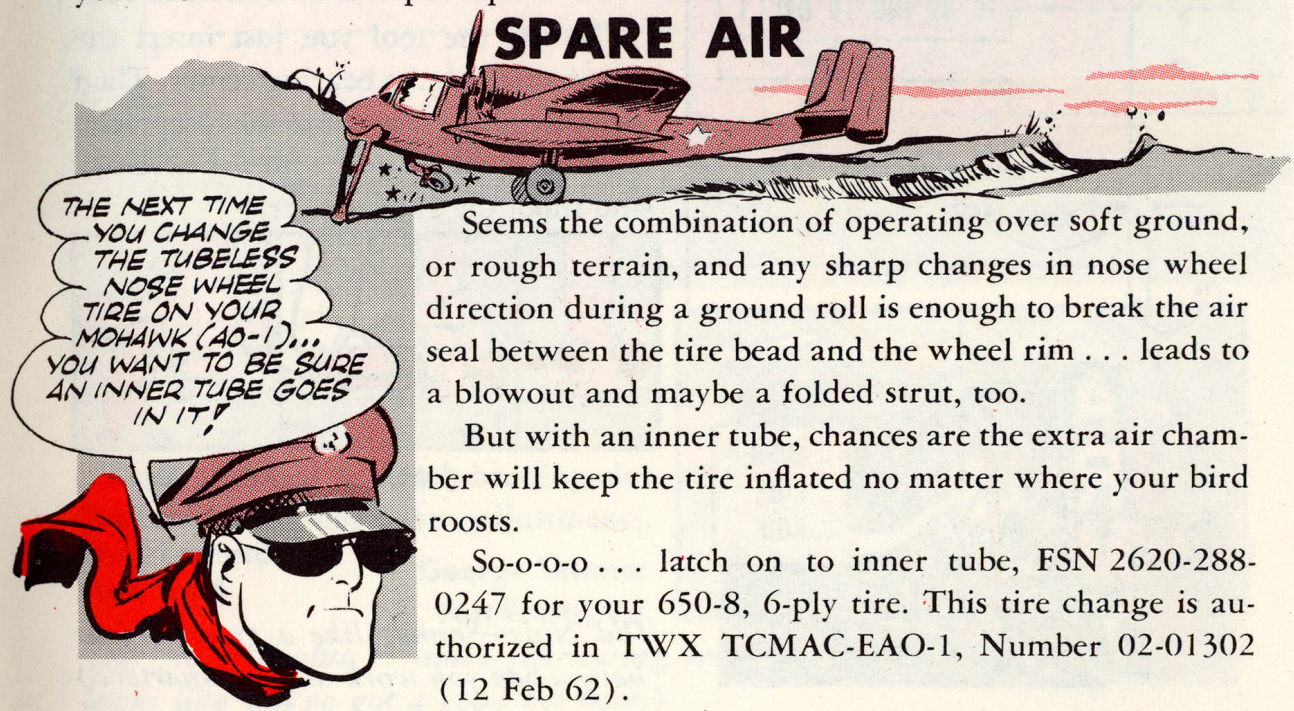
Dear Specialist J. H. J.,

The Bird Dog TM is the one you should follow 'cause it's the most recent of the two pubs and it deals with your specific bird.

But you're really splitting hairs . . . whether you turn the kit in for inspection or replacement. Actually the medics will inspect the kit and **replace only** those items that need replacement.

One thing though—you want to get a kit back in your bird without delay. So if there's gonna be any hold-up, swap your kit for an on-the-spot replacement.

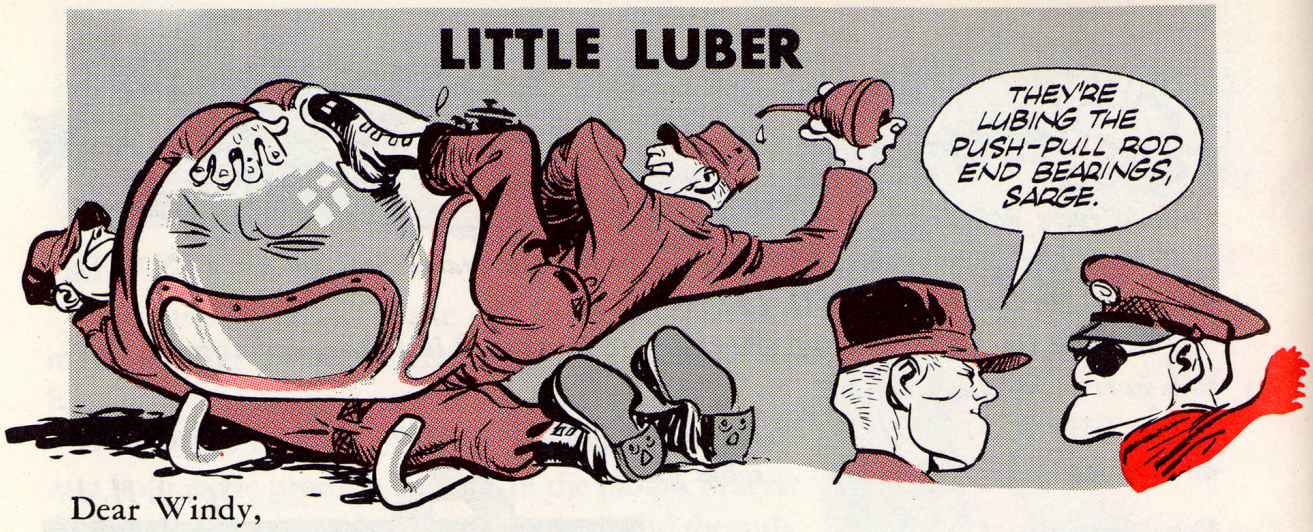
SPARE AIR



Seems the combination of operating over soft ground, or rough terrain, and any sharp changes in nose wheel direction during a ground roll is enough to break the air seal between the tire bead and the wheel rim . . . leads to a blowout and maybe a folded strut, too.

But with an inner tube, chances are the extra air chamber will keep the tire inflated no matter where your bird roosts.

So-o-o-o . . . latch on to inner tube, FSN 2620-288-0247 for your 650-8, 6-ply tire. This tire change is authorized in TWX TCMAC-EAO-1, Number 02-01302 (12 Feb 62).

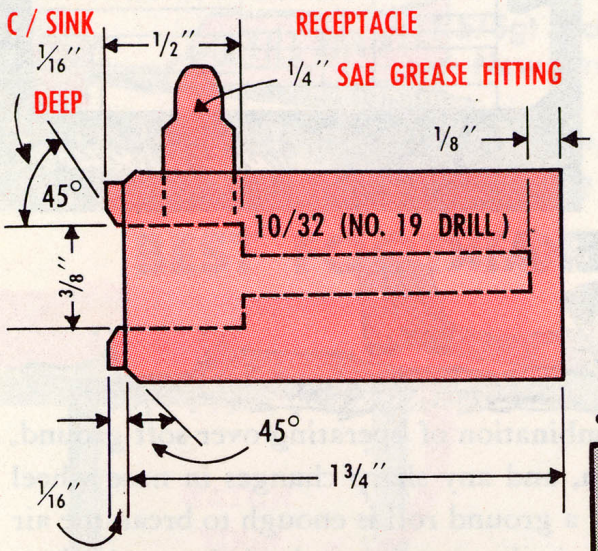


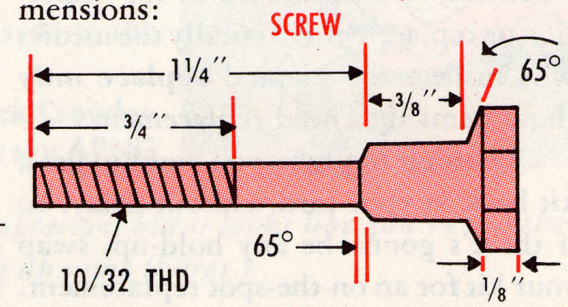
Dear Windy,

Anybody who's ever greased the push-pull rod end bearings in a Sioux (H-13), or Shawnee (H-21), knows you have to make like a Houdini in some places. You need room to maneuver QM's lubricator!

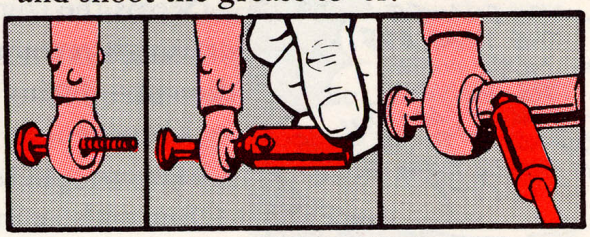
So we dreamed up this handy little lubricator to use on those hard-to-get-at bearings.

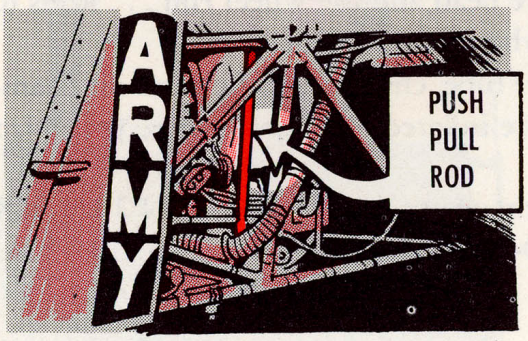
The tool's made of cold rolled steel and you can get your support to make it, or have it made by a commercial outfit, for about 45 cents apiece. We had one made for each mech, to these dimensions:





To use the tool you just insert the screw through the bearing center. Then you thread the screw into the receptacle, until the tool is snug with the bearing, and shoot the grease to 'er.





M/Sgt James H. Marcus
Miller Field
Staten Island
New York

(Ed Note—Sounds like a good tool to have when you work in close quarters.)

CONTRIBUTIONS

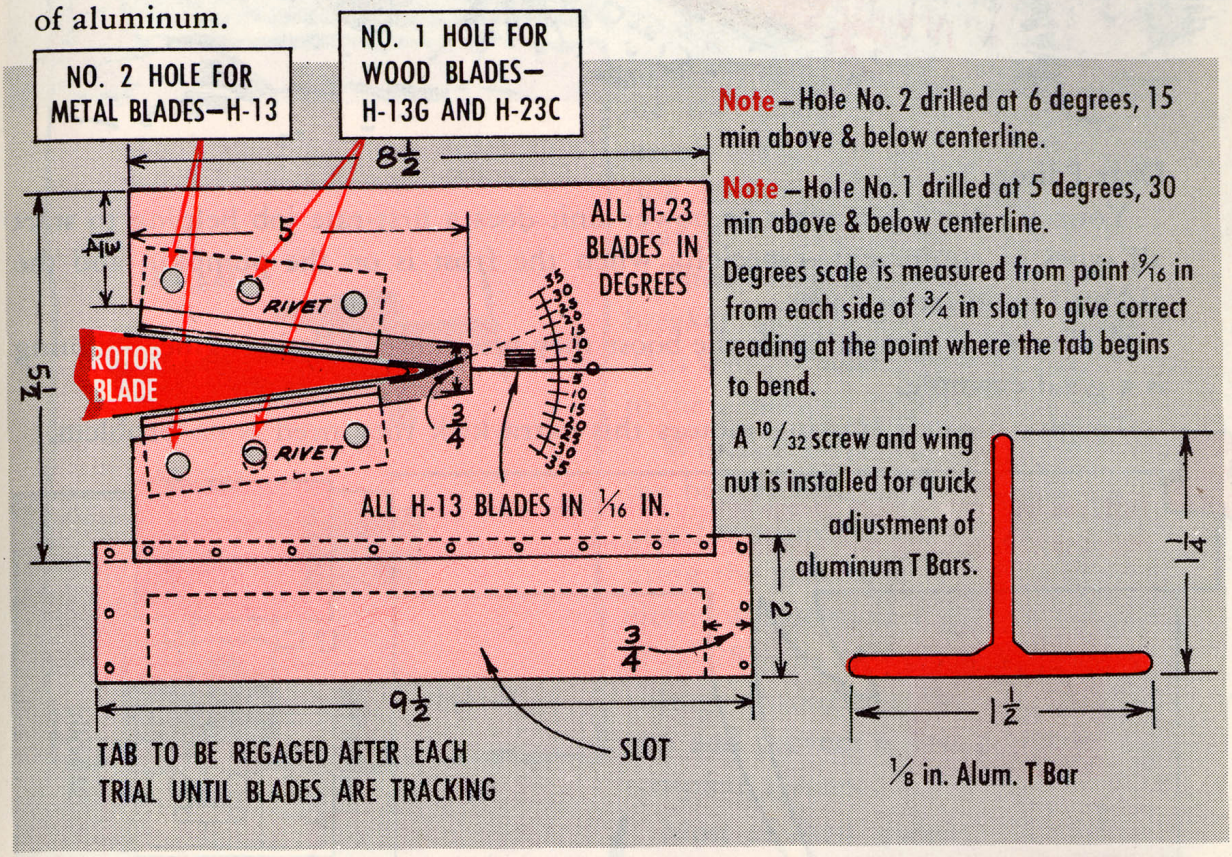
FOUR-IN-ONE TAB TOOL

Dear Editor,

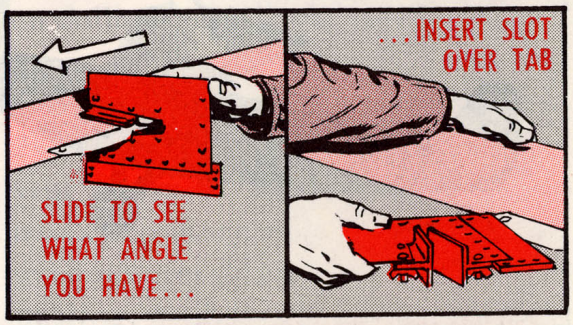
Rather than bend either wood or metal main rotor blade trim tabs on a Raven (H-23) by hand, here's a tool that'll help you make exact adjustments—when tracking your blades.

This tool is also good for adjusting Sioux (H-13) wood or metal main rotor blade trim tabs. So even if you already have a tab bending tool for each blade (wood and metal) for either the Sioux or Raven, this tool can do the job for any of these four different blades.

All you need to make the tool is some salvage sheet metal and a piece or two of aluminum.



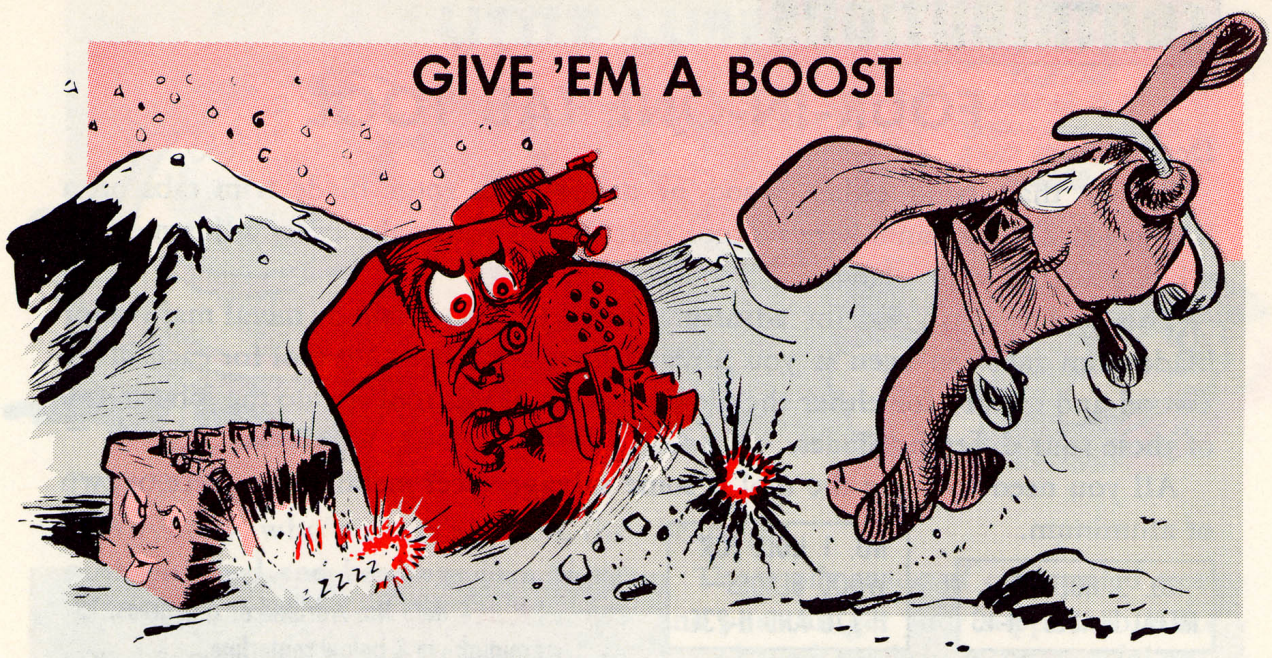
To use this tool just slide it along the inboard side of the tab to see what angle you've got. Then you turn the tool around and insert the tab bending slot over the tab to make your adjustments.



George Skinner
Fort Eustis, Va.

(Ed Note: Righto . . . since fabricating trim tab bending tools is a local deal, looks like you've got a good bet here.)

GIVE 'EM A BOOST



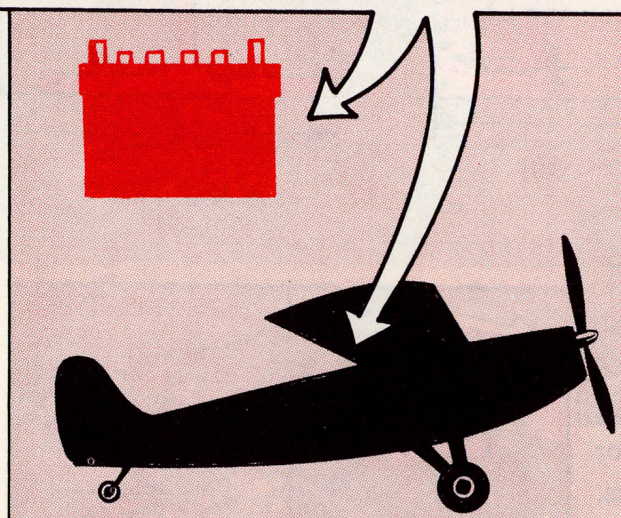
Dear Editor,

Your auxiliary generator or power unit does a first-rate job helping to start all types of equipment—especially when the frost is on the pumpkin and the old mill pond freezes over.

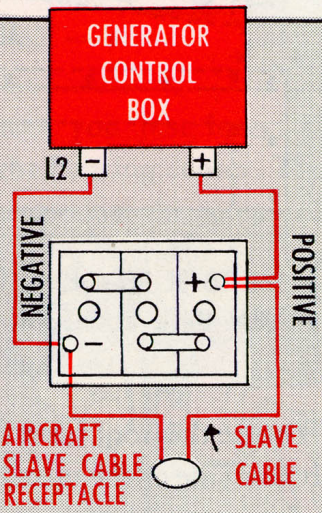
Giving your Army aircraft the boost they need to send their engines spinning is a good example.

To give aircraft starting motors this extra kick they need is no problem.

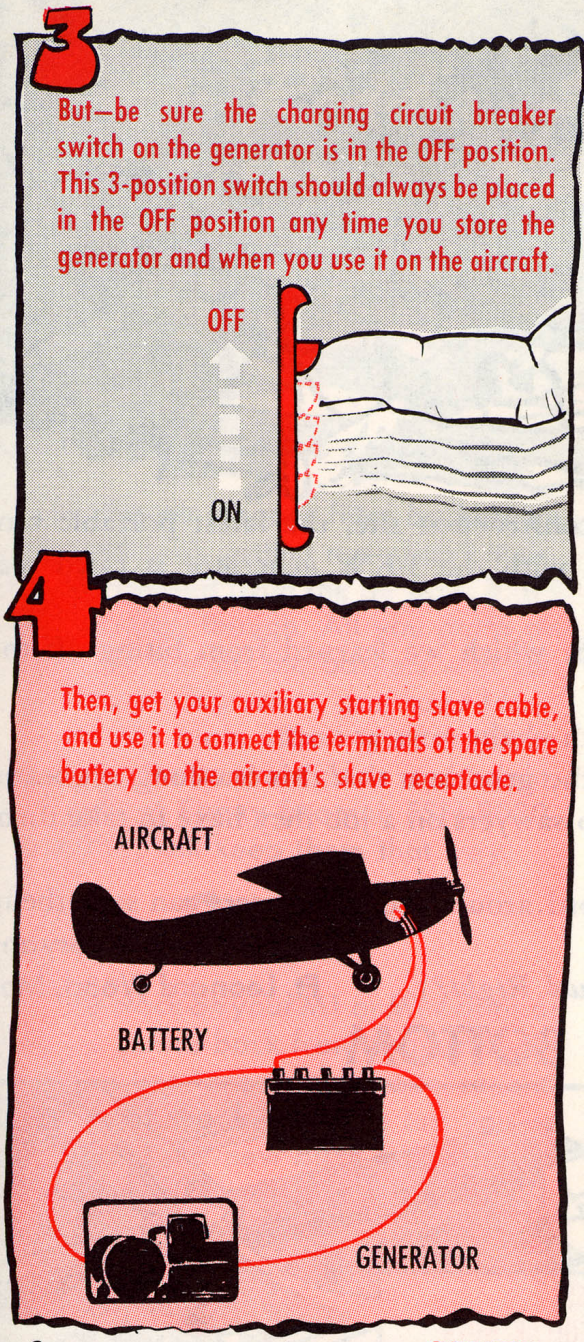
1 First, you latch onto a spare storage battery with the same rated amp hour and voltage as the craft uses for normal starting and operating.



You rate one of these spare batteries in your Organizational Tool Set, Aviation, Set A Supplemental, two in Set B, and four in Set C (for ground use only).



2 Now, hook up the battery in parallel with the generator. You do this by connecting the positive lead from the generator to the positive-battery-terminal, and the negative-generator-lead to the negative-battery-terminal.



So-o-o, now you've got: **GENERATOR to SPARE BATTERY to AIRCRAFT.**

With this hook-up, you keep the generator from being overworked and still allow the current to bypass the batteries inside the aircraft while taking a ground reading of all the instruments and meters in the plane. Just doublecheck that the aircraft's master battery switch is off before you start.

One important thing to remember:

DON'T ATTEMPT TO START THE AIRCRAFT WITH THE GENERATOR CONNECTED DIRECTLY TO THE AIRCRAFT.

The rated output of the generator is too low to do the job all by itself. Letting the generator do the work on its own can result in serious damage—maybe sidelining it permanently.

Now, keep this in mind. Before starting, check the spare battery to be sure it's fully charged. Take a fresh one from the rack if you have to . . . or operate the generator with the charging circuit breaker switch in the ON position to bring the battery up to full charge.

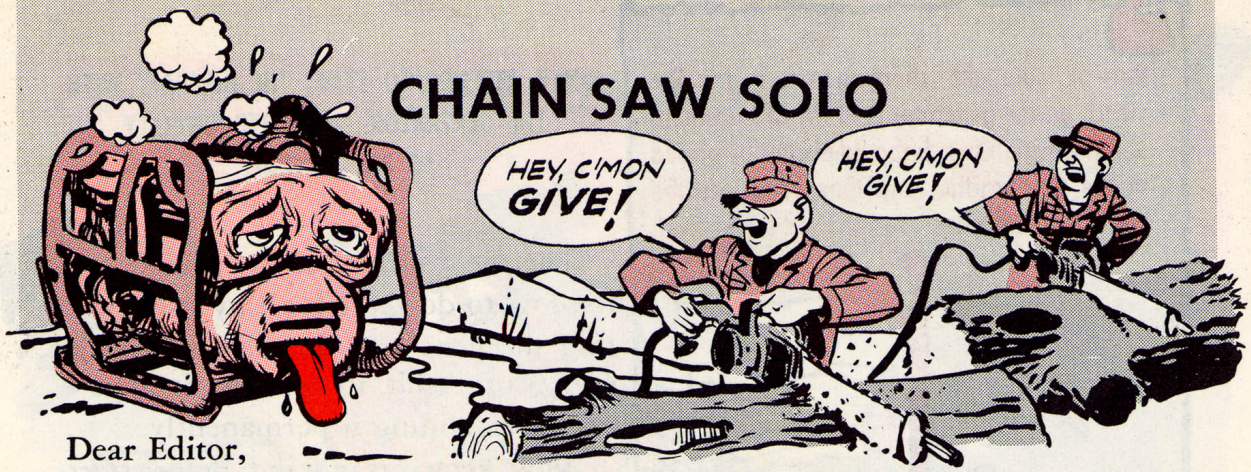
Then, when you shut down, put the breaker switch in the OFF position. This will prevent the battery connected to the generator from discharging.

Without help from the generator, the battery will crank the aircraft engine for a **limited** time only. However, using the generator as a booster to the electrical system at a maximum output of 26-28 volts will maintain a constant voltage throughout the electrical system and prevent a voltage drop in the complete system.

Most of these gadgets are mounted on dollies and you can use 'em on your heavy construction equipment and wheel and track vehicles that have the 24-volt system. This will help to prevent injury to operators and maintenance personnel, and eliminate damage to equipment caused by broken chains, pulling, pushing, bending, lugging, and shoving.

James P. Barrett
Ft. Benning, Ga.

CHAIN SAW SOLO



Dear Editor,

For pioneer-type work around a construction site, the latest portable tool outfit, SM 5-4-5180-S36, that works with the 3-KW generator is rated real slick stuff in this neck of the woods.

There's just one little catch, though, which we learned from biting off too big a chew.

The 3-KW generator can't pull both chain saws at once.

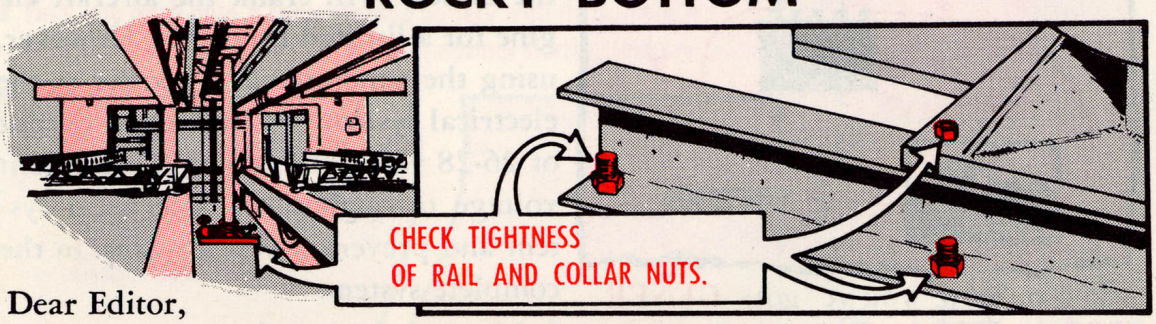
One saw puts about all the load on the generator that this one-lung eggbeater can stand, so if you want to put two sawyers on a job they have to take turns with the trigger.

Thought you'd want to pass this word around, so other users can save themselves some trouble.

Orby R. Bryant
Ft. Leonard Wood, Mo.

(Ed Note—Sometimes even two is a crowd. Right?)

ROCKY BOTTOM



Dear Editor,

On some of your Nike Launcher elevators, the main cylinder supporting collar and the channel rails have worked loose enough to let a missile loaded platform rock on the rise—'specially during console operation.

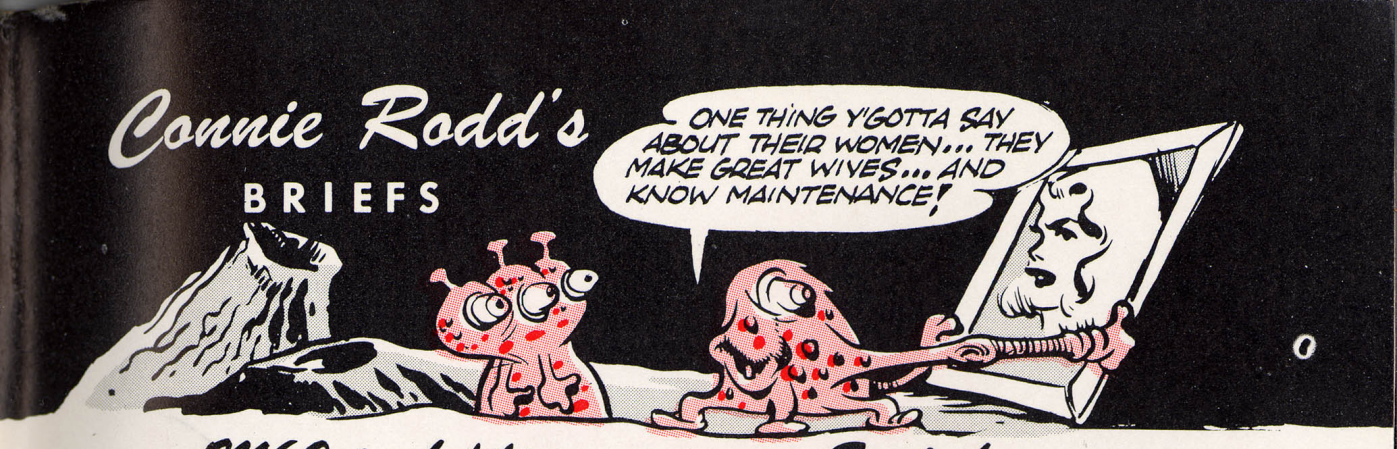
To prevent this dangerous condition from developing, each battery should first get its support people to check out the condition of the cylinder mounting. Then a battery mechanic should check the tightness of the nuts on both the collar and the channel rails at least once a month, as a scheduled maintenance service.

This makes for an on-the-level operation.

Gene Henderson
Missile Bn
Tappan, N. Y.

(Ed Note—Good idea. Console operation is no time for rock 'n roll.)

Connie Rodd's BRIEFS



M60 tank filters

Are the air cleaner filter baskets on your M60 tank getting rusted up? Moisture condensed from the air does it. It's easy to stop, though. All you gotta do is get the rust off the baskets with solvent, vapor degreaser, grit, sand blasting, or just plain elbow grease. Once you have the baskets clean and bright, one coat of Epoxy Enamel, FSN 8030-530-6651, will keep them that way.

Stay cool

If the stock on your M1 or M14 rifles or carbine comes back from support looking like a two-toned sport model special —don't get shook. Chances are you've got one of the new birch wood stocks with different blends of coloring. They're authorized items of issue—so you won't get gigged for your sporty stock by some inspector.

Seal the seams

You've got yourself troubles in spades when rain and snow water works its way from the outside of your Hawk equipment—like the missile test shop—through the seams on to the different electronic chassis inside. You can make sure this doesn't happen to you, tho, by running some sealing compound along the seams. The compound, FSN 8030-543-4384, is on page 5 of TM 9-4935-501-20P (Oct 61).

Lightweight shelter dope

TB Sig 354 (13 Apr 62) is hot off the press and waiting to help you end some of that shelter skelter. It gives you maintenance and repair dope on your S-141/G and S-144/G shelters.

"Operation ARM" aims for combat-ready gear

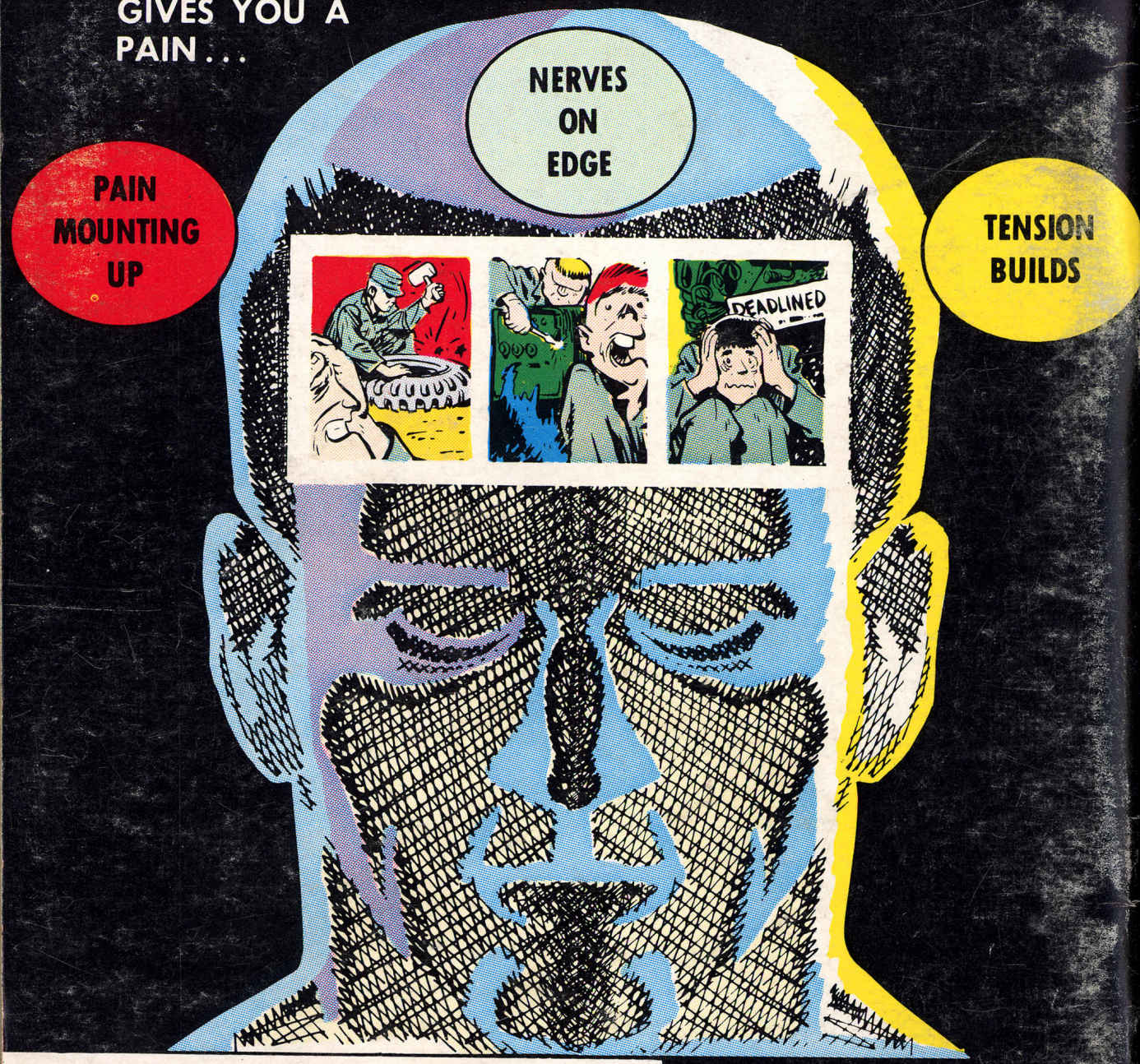
If you're the guy who's been wanting more people to take an interest in and do something about keeping equipment combat-ready, then jump up, click your heels and shout the happy word—

"Operation ARM" (for **A**rmy **R**eady **M**ateriel) has been fired off from Pentagon topside. Studies and actions are rolling; you'll be seeing and hearing lots about "Operation ARM" during the coming few weeks and months. Get the first scoop by taking a gander at AR 11-14 (5 June 62).

"Operation ARM" aims to make sure Army equipment is kept as combat-ready as the soldier.

Would You Stake Your Life on the Condition of Your Equipment?

IF YOUR EQUIPMENT MAINTENANCE GIVES YOU A PAIN . . .



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